UNIT 6 DISASTER MANAGEMENT

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6.0 INTRODUCTION

In the previous Unit 5 you have learnt First aid in common emergency condition. During your experience you may also encounter some sudden natural and man made calamities, so you should prepare to manage these disasters. A disaster occurs when a hazard impacts on vulnerable people. The combination of hazards, vulnerability and inability to reduce the potential negative consequences of risk results in disaster. In this unit you will learn meaning, types magnitude risk reduction emergency preparedness of disasters.

6.1 OBJECTIVES

After completing this unit, you should be able to:

• explain the meaning of disasters;
• identify the types of disasters;
• explain the magnitude of disasters;
• enumerate the common problems of disasters;
• identify emergency measure; and
• provide life saving techniques.
6.2 DISASTER

Disaster is a sudden calamitous event bringing great damage, loss, or destruction; broadly: a sudden or great misfortune or failure.

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

There are a range of challenges, such as climate change, unplanned-urbanisation, under-development/poverty as well as the threat of pandemics that will shape humanitarian assistance in the future. These aggravating factors will result in increased frequency, complexity and severity of disasters.

What makes them vulnerable to that threat or hazard?

Counteracting vulnerability requires:

- reducing the impact of the hazard itself where possible (through mitigation, prediction and warning, preparedness);
- building capacities to withstand and cope with hazards;
- tackling the root causes of vulnerability, such as poverty, poor governance, discrimination, inequality and inadequate access to resources and livelihoods.

6.3 TYPES OF DISASTERS

Disasters can take many different forms, and the duration can range from an hourly disruption to days or weeks of ongoing destruction. Broadly speaking there are two types of Disasters i.e. Natural and Man-made. It can be further divided into sub categories (Fig. 6.1)

![Fig. 6.1: Types of Disaster](Image)

6.3.1 Natural Hazards

The disasters that are caused by nature are termed as natural disasters e.g., earthquake, cyclone etc. These are primarily natural events. It is possible that certain human activities could also be involved in some of these events, but, by and large, these are mostly natural events. These are naturally occurring physical phenomena caused either by rapid or slow onset events which can be categorized into:

**Geophysical:** earthquakes, landslides, tsunamis and volcanic activity

**Hydrological:** avalanches and floods

**Climatological:** extreme temperatures, drought and wildfires,

**Meteorological:** cyclones and storms/wave surges

**Biological:** disease epidemics and insect/animal plagues.
**Hurricanes and tropical storms:** Hurricanes and tropical storms are among the most powerful natural disasters because of their size and destructive potential. Tornadoes are relatively brief but violent, potentially causing winds in excess of 200 mph. Both earthquakes and tornadoes strike suddenly without warning.

Flooding is the most common of natural hazards, and requires an understanding of the natural systems of our environment, including floodplains and the frequency of flooding events. Wildfires are more prevalent in the event of a drought. Here are some examples of natural disasters:

**Earthquake:** Earthquake is a sudden and violent shaking of ground causing great destruction as a result of movement of earth’s crust. An earthquake has the potential to tsunami or volcanic eruption. Earthquake of magnitude 9.2 on the Richter’s scale in 2004 in Indonesia is the second largest earthquake ever recorded. The deadliest earthquake happened in Central China, killing over 800,000 in 1556. People during that time and region lived in caves and died from the caves collapsing.

**Cyclone:** Cyclones (or more properly called Tropical Cyclones) are a type of severe spinning storm that occurs over the ocean near the tropics. The most famous Australian historic cyclone was Cyclone Tracy, December 1974, where around 11 people died in Darwin, Northern Territory. The direction they spin depends on which hemisphere they are in. In the Southern hemisphere they spin in a clockwise direction and Northern hemisphere they spin in an anti-clockwise direction.

**Tsunami:** Tsunamis are giant waves, initiated by a sudden change, usually in relative position of underwater tectonic plates. The sudden jerk is enough to propagate the wave; however, its power can be enhanced and fed by lunar positioning and boundaries that focus its energy.

**Volcanic eruptions:** Volcanic disasters are caused by lava flows, volcanic mudflows and pyroclastic flows triggered by volcanic activities such as eruptions. It covers extensive areas; volcanic disasters can cause a large-scale damages and serious personal injury. Secondary disasters such as debris flows are often triggered by rainfall after a volcanic eruption. In the 1815, the Indonesian eruption threw rocks more than 100 cubic km of ash killing 92,000 people. The greatest volcanic explosion occurred in Indonesia in 1883, which resulting in rocks hurling 55 km up into the air. The explosion was heard in Australia and generated a 40 m high tsunami, killing 36,000 people.

**Floods:** Flooding is the unusual presence of water on land to a depth which affects normal activities. Flooding can arise from: overflowing rivers (river flooding), heavy rainfall over a short duration (flash floods), or an unusual inflow of sea water onto land (ocean flooding). Ocean flooding can be caused by storms such as hurricanes (storm surge), high tides (tidal flooding), seismic events (tsunami) or large landslides.

### 6.3.2 Technological or Man-Made Hazards

Disasters also can be caused by humans. These are mostly caused due to certain human activities. The disasters which are caused as a result of human activities are termed as Man-Made Disasters e.g., Road accident, terrorist attack. The disasters themselves could be unintentional, but, are caused due to some intentional activity. Most of these (barring coordinated terrorist activities) are due to certain accidents – which could have been prevented – if sufficient
precautionary measures were put in place. Hazardous materials emergencies include chemical spills and groundwater contamination. Workplace fires are more common and can cause significant property damage and loss of life. Communities are also vulnerable to threats posed by extremist groups who use violence against both people and property.

High-risk targets include military and civilian government facilities, international airports, large cities and high-profile landmarks. Cyber-terrorism involves attacks against computers and networks done to intimidate or coerce a government or its people for political or social objectives.

These are events that are caused by humans and occur in or close to human settlements such as complex emergencies/conflicts, famine, displaced populations, industrial accidents and transport accidents. This can include environmental degradation, pollution and accidents.

There are a range of challenges, such as climate change, unplanned-urbanisation, under-development/poverty as well as the threat of pandemics, that will shape humanitarian assistance in the future. These **aggravating factors** will result in increased frequency, complexity and severity of disasters. Some of the examples of man-made disasters are as follows:

**Road Accidents:** Road accidents are common in India due to reckless driving, untrained drivers and poor maintenance of roads and vehicles. According to Lifeline Foundation, the Ahmedabad based organization working for road safety, India accounts for 13 per cent of road accident fatalities worldwide. With 130,000 deaths in 2007, India tops in the number of people killed in road accidents, surpassing China’s 90,000. Most of these deaths occurred due to bad road designs and lack of proper traffic management systems to separate different streams of traffic.

**Building and Bridge Collapse:** Building collapses are frequent in India where construction is often hastily done, with little regard for safety regulations, particularly in the western part of the country.

**Terrorist Attack:** Devastating acts such as the terrorist attacks on the World Trade Centre and the Pentagon have left many concerned about the possibility of future incidents in the United States and their potential impact. Terrorism may involve devastating acts using weapons of mass destruction ranging from chemical agents, biological hazards, a radiological or nuclear device, and other explosives.

### 6.4 MAGNITUDE OF DISASTERS

Whether a result of human activities or natural, disasters can be further divided into the following categories depending on the scope or area affected:

#### 6.4.1 Local Disasters

Are limited to your property and/or local community. Examples would include tornados, which could level or otherwise severely damage your home and/or the homes of your neighbours. Another example would be the derailment of a freight train resulting in the release of toxic gases from a tanker car into your neighbourhood and surrounding area. Other examples would include floods and forest fires.
6.4.2 Regional Disasters

Effect a larger area but are limited to one region of the country. Hurricane Katrina was an example of a regional disaster. Other examples would include earthquakes, droughts and crop failures.

6.4.3 National Disasters

As the name implies would affect the entire nation. A war would be an example. Other examples would include an economic depression, severe stock market crash or collapse of the currency.

6.4.4 Global Disasters

Affect the entire planet. In today’s global economy it would be easy for a national disaster to quickly escalate to a global one. An economic depression in the US, for example, would affect our trading partners as well. With the US dollar acting as the major reserve currency for most of the world, a collapse of the currency would be disastrous for nearly every nation, including those as far off as China and Japan. In fact, never before in history has the potential for a human-caused disaster of global proportions been more possible. In our highly-mobile society it is also very possible for a natural disaster, such as an epidemic, to quickly spread around the globe becoming a pandemic. Furthermore, according to many scientists, human activities, such as pollution, radioactive contamination, chemtrails, and genetically-modified organisms (GMO) to name just a few, are threatening the delicate ecological balance that has existed on the Earth for millions of years.

As we have seen, the amount of provisions that you will want to store will depend on how long you anticipate an emergency could last, which in turn will depend on the magnitude or scope of the disasters that you consider possible for your area. If a hurricane hits your community, a one-week supply of food and water will probably be sufficient, for certainly help will arrive within a week. But a collapse of the currency, resulting in a global disaster, might require that you store enough supplies to last for months.

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<tr>
<td>1) Explain types of disasters.</td>
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<tr>
<td>2) Define Local Disasters.</td>
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<td>3) Define any three natural disasters.</td>
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6.5 DISASTER PREPAREDNESS/ RISK REDUCTION

Disaster preparedness can prevent a bad situation from becoming worse. Emergencies come in many forms and having the right checklist, supplies and kit for any possible contingency can aid in making your family safe. Planning ahead also helps everyone understand what to do should a disaster strike. In some instances it may be several days before vital services can be prepared and surviving this period may be difficult. Disaster preparedness is highlighted every year during the month of September. When disaster strikes, having a plan of action already in place can be key to ensuring positive response and recovery outcomes!

6.5.1 Importance of Disaster Preparedness

In an emergency situation it is easy to be afraid and anxious over what is happening. Disaster preparedness reduces these feelings and helps communities and families know what to do in the event of a disaster and where to seek shelter during a tornado, where to take refuge and how to care for basic medical issues. It can also help alleviate some of the devastation by reducing the impact of a disaster. For example, homeowners who live in a fire zone in the forest can clear away underbrush from their homes to help prevent future forest fires from burning down their homes. In addition, they can store valuables in fire proof boxes in case a fire does reach the house. They should be ready to evacuate their homes and take refuge in public shelters and know how to care for their basic medical needs. People also can reduce the impact of disasters (flood proofing, elevating a home or moving a home out of harm’s way, and securing items that could shake loose in an earthquake) and sometimes avoid the danger completely.

Disasters disrupt hundreds of thousands of lives every year. Each disaster has lasting effects, both to people and property. If a disaster occurs in any community, local government and disaster-relief organisations will try to help people, but the individuals need to be ready as well. Local responders may not be able to reach them immediately, or they may need to focus their efforts elsewhere. Masses should know how to respond to severe weather or any disaster that could occur in their area—hurricanes, earthquakes, extreme cold, flooding, or terrorism. They should also be ready to be self-sufficient for at least three days. This may mean providing for own shelter, first aid, food, water, and sanitation.

6.6 EMERGENCY PREPAREDNESS

Emergency preparedness includes measures which enable governments, organisations, communities, and individuals to respond rapidly and effectively to disaster situations. Preparedness measures include the formulation to viable disaster plans, the maintenance of resources, and the training of personnel.

Emergency preparedness is a programme of long term development activities whose goals are to strengthen the overall capability of a country to manage efficiently all types of emergency. It should bring about an orderly transition from relief through recovery, and back to sustainable development.
Objectives

- To ensure that appropriate systems, procedures and resources are in place.
- To provide prompt effective assistance to disaster victims, thus facilitating relief measures and rehabilitation of services.

The reasons for community preparedness are:

- Members of the community have the most to lose from being vulnerable to disasters and the most to gain from an effective and appropriate emergency preparedness programme.
- Those who first respond to an emergency come from within the community.
- Resources are more easily pooled at the community level and every community possesses capabilities. Failure to exploit these capabilities is poor resource management.
- Sustainable development is best achieved by allowing emergency affected communities to design, manage and implement internal and external assistance programme.

Disaster preparedness is an ongoing multispectral activity. It forms an integral part of the national system responsible for developing plans and programmes for disaster management which includes prevention, mitigation, preparedness, response, rehabilitation and reconstruction.

Disaster preparedness depends on the coordination of a variety of sectors to carry out the following tasks:

- Evaluate the risk of the country or particular region to disaster
- Adopt standards and regulations
- Organise communication, information and warning systems
- Ensure coordination and response mechanisms
- Adopt measures to ensure the financial and other resources are available for increased readiness and can be mobilised in disaster situation
- Develop public education programmes
- Coordinate information sessions with news media
- Organise disaster simulation exercises that test response mechanisms.

Coordination of effort

Disaster preparedness and the response operations to which preparedness essentially applies involve a wide range of activities and organisations. If these activities are to be successfully carried out by the organisations concerned, a system for achieving coordinated effort is clearly needed. This system is usually provided through the organisational framework. For instance, a provincial disaster committee would normally coordinate activities within its area of responsibility. However, additional coordinating responsibilities may be designated to organisations or individuals, if deemed necessary. Arrangements to achieve successful coordination of effort must obviously be made, as a part of preparedness, before disaster impact.

Operational Facilities and Systems

Adequate preparedness of the various facilities and systems which are required
for response operations is also most important. Such facilities and systems usually include:

- emergency or stand-by communications;
- a warning system, including provision of warning and information to the general public;
- a system for activating the organisational structure and its resource organisations (usually by designating stages such as Alert, Standby, and Action);
- emergency operation centers (which form the focal points of information management);
- a system for damage survey and assessment of needs;
- emergency relief arrangements (for food, shelter materials, medical assistance, etc.).

**Equipment and Supplies**

If stockpiles of emergency equipment and supplies are held, these need appropriate surveillance to ensure their serviceability and ready availability. Emergency equipment needs to be held at the levels where it will be primarily used (e.g., equipment for local self-help teams, such as picks and shovels, needs to be held at the community level). Sometimes safe storage (and thus ready availability) poses some problems. However, these can usually be overcome locally. In one case, the village schoolmaster was made responsible for storing and maintaining emergency stocks and schoolchildren had a part in checking and accounting for them. Where there is a possibility that equipment and supplies from the private sector may need to be co-opted or requisitioned, preparedness arrangements for this eventuality need to be maintained.

**Some Problem Areas in Preparedness:**

Because of its diversity and the large number of organisations which it usually involves, preparedness can produce certain problem areas, as indicated below.

**Organisation and Planning**

- Inadequate policy direction for overall disaster management will tend to have adverse effects on the event and standard of preparedness.
- Lack of appropriate counter-disaster plans will also result in an inadequate preparedness.
- Outdated plans will also tend to affect preparedness standards.
- If disaster management organisational structure is inadequate or inappropriate, preparedness measures will unlikely be fully effective.
- Over concentration on response and recovery measures may lead to low preparedness standards. This also tends to be a fairly common failing in disaster management.

**Resource**

- Unless there is a complete inventory of resource organisations, plus clear allocation of roles and responsibilities to those organisations, gaps or overlaps in preparedness arrangements are likely to exist.
Coordination

- Inadequate coordination in disaster management may result in substandard and/or variable levels of preparedness, because departments and organisations may be working to different preparedness criteria and different priorities.

- Friction and/or lack of cooperation between disaster-related organisations can have very bad effects on preparedness. Such problems may arise from inter-organisational rivalry, poorly defined areas of responsibilities, or clashes of personality between senior officials.

Readiness

- Without a national or central disaster management section or center to serve as a focal point, it is very difficult to monitor standards of preparedness.

- For instance, emergency operations centers may become inadequately prepared to respond quickly to the onset of disaster; emergency equipment, such as stand-by power generators, may be allowed to become unserviceable; and emergency communications equipment may not be adequately serviced and tested.

Training and Public Awareness

- Lack of suitable training for disaster management personnel will obviously result in low standards of preparedness.

- Inadequate public awareness and information concerning disasters usually contributes significantly to poor preparedness.

If preparedness measures are to be fully effective, they need to be clearly set out in appropriate plans. Such plans usually need to apply at the national, provincial/ regional, and local government levels. If preparedness measures are set within this planning framework, responsibilities for them can be clearly and officially defined. This also helps ensure that the measures can be systematically monitored and kept up-to-date. The production of effective counter-disaster plans usually involves considerable negotiation with resource organisations (e.g., government departments, NGOs), especially to ensure that their capability is used to the maximum extent. This is important because, especially in severe disaster circumstances, the total capability of these organisations is needed to deal with the many operational tasks which arise.

Individual preparedness

Every citizen in the country is part of a national emergency management system that is all about protection – protecting people and property from all types of hazards. Think of the national emergency management system as a pyramid with you, the citizen, forming the base of the structure. At this level, you have a responsibility to protect yourself and your family by knowing what to do before, during, and after an event. To get started it is important to put together a disaster preparedness checklist. To start this, determine the best escape routes in case of an emergency. Also set up a meeting place in case loved ones are separated. The checklist should also include an emergency contact and each family member should have a copy of this.
Some examples of what people can do follow:

Before: Know the risks and danger signs. Purchase insurance, including flood insurance, which is not part of your homeowner’s policy. Develop plans for what to do.

During: Put your plan into action. Help others. Follow the advice and guidance of officials in charge of the event.

After: Repair damaged property. Take steps to prevent or reduce future loss.

It is sometimes necessary to turn to others within the local community for help. The local level is the second tier of the pyramid, and is made up of paid employees and volunteers from the private and public sectors. These individuals are engaged in preventing emergencies from happening and in being prepared to respond if something does occur. Most emergencies are handled at the local level, which puts a tremendous responsibility on the community for taking care of its citizens. Among the responsibilities faced by local officials are:

- Identifying hazards and assessing potential risk to the community.
- Enforcing building codes, zoning ordinances, and land-use management programmes.
- Coordinating emergency plans to ensure a quick and effective response.
- Fighting fires and responding to hazardous materials incidents.
- Establishing warning systems.
- Stocking emergency supplies and equipment.
- Assessing damage and identifying needs.
- Evacuating the community to safer locations.
- Taking care of the injured.
- Sheltering those who cannot remain in their homes.
- Aiding recovery efforts.

If support and resources are needed beyond what the local level can provide, the community

Basic Preparedness

- A series of worksheets to help you obtain information from the community that will form the foundation of your plan. You will need to find out about hazards that threaten the community, how the population will be warned, evacuation routes to be used in times of disaster, and the emergency plans of the community and others that will impact your plan. Guidance on specific content that you and your family will need to develop and include in your plan on how to escape from your residence, communicate with one another during times of disaster, shut-off household utilities, insure against financial loss, acquire basic safety skills, address special needs such as disabilities, take care of animals, and seek shelter.

Disaster preparedness supplies: That should be on hand include blankets, medical supplies, water and food. Often basic necessities such as electricity, gas, water, sewage treatment and telephone service can be cut in an emergency. People also frequently need to evacuate their homes. It helps to have some essential
tools, clothing, sanitary supplies and medications easily accessible. These items can be packed in a pack that can be quickly grabbed if a disaster strikes.

No matter what type of catastrophe strikes, it is vital to be prepared. With the right knowledge and the right equipment, it is possible to survive a natural or man-made disaster. Once you have a plan in place, implement the tools necessary to keep your family safe, fed, hydrated and sanitary. In addition, be sure to review any plans regularly with them to ensure that they know what to do if disaster should strike your home or community.

**Community and Other Plans**

*ask local officials the following questions about your community’s disaster/ emerge*

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<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<td>Does my community have a plan?</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Can I obtain a copy?</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>What does the plan contain?</td>
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<td>How often is it updated?</td>
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<tr>
<td>What should I know about the plan?</td>
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<td>What hazards does it cover?</td>
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In addition to finding about your community’s plan, it is important that you know what plans are in place for your workplace and your children’s school or day care center. Ask your employer about workplace policies regarding disasters and emergencies, including understanding how you will be provided emergency and warning information. Contact your children’s school or day care center to discuss their disaster procedures.

**School Emergency Plans**

Every school needs to have school emergency plan. School should have plan for communicating with families during a crisis. The school should stores adequate food, water, and other basic supplies. School should be prepared to shelter-in-place if need be, and where they plan to go if they must get away. In such situations parents may not be permitted to drive to the school to pick up your children Monitor local media outlets for announcements about changes in school openings and closings, and follow the directions of local emergency officials.

**Workplace Plans**

If you are an employer, make sure your workplace has a building evacuation plan that is regularly practiced. Take a critical look at your heating, ventilation and air conditioning system to determine if it is secure or if it could feasibly be upgraded to better filter potential contaminants, and be sure you know how to turn it off if you need to. Think about what to do if your employees can not go home. Make sure you have appropriate supplies on hand.

**Emergency plan for the family**

Families need to be prepared to respond to emergencies by creating a family disaster plan. This process can be started by gathering family members and reviewing the information i.e. hazards, warning systems, evacuation routes and community and other plans. Discuss with family what to do if family members are not home when a warning is issued. Additionally, family plan should address the following:
• Escape routes
• Family communications
• Utility shut-off and safety
• Insurance and vital records
• Special needs
• Caring for animals
• Safety Skills

6.7 BASIC DISASTER SUPPLIES KIT

The following items are recommended for inclusion in your basic disaster supplies kit:

• Three-day supply of non-perishable food.
• Three-day supply of water – one gallon of water per person, per day.
• Portable, battery-powered radio or television and extra batteries.
• Flashlight and extra batteries.
• First aid kit and manual.
• Sanitation and hygiene items (soap).
• Matches and waterproof container.
• Whistle.
• Extra clothing.
• Kitchen accessories and cooking utensils, including a can opener.
• Photocopies of credit and identification cards.
• Cash and coins.
• Special needs items, such as prescription medications, eye glasses, contact lens solutions, and hearing aid batteries.
• Items for infants, such as formula, diapers, bottles, and pacifiers.
• Other items to meet your unique family needs.

If you live in a cold climate, you must think about warmth. It is possible that you will not have heat. Think about your clothing and bedding supplies. Be sure to include one complete change of clothing and shoes per person. Maintaining Your Disaster Supplies Kit Just as important as putting your supplies together is maintaining them so they are safe to use when needed.

6.8 COMMON PROBLEMS TO ALL DISASTER

Now let us go through the effects of disasters as given below:

Effects of disaster

Disasters throughout history have had significant impact on the numbers, health status and life style of populations.

• Deaths
• Severe injuries, requiring extensive treatments
• Increased risk of communicable diseases
• Damage to the health facilities
• Damage to the water systems
• Food shortage
• Population movements

Health problems common to all Disasters

• Social reaction
• Communicable diseases
• Population displacements
• Climatic exposure
• Food and nutrition
• Water supply and sanitation
• Mental health
• Damage to health infrastructure

Social Reactions

After a major natural disaster, behaviour only rarely reaches generalised panic or stunned waiting. Spontaneous yet highly organised individual action accrues as survivors rapidly recover from their initial shock and set about purposefully to achieve clear personal ends. Earthquake survivors often begin search and rescue activities minutes after an impact and within hours may have organised themselves into groups to transport the injured to medical posts. Actively antisocial behaviour such as widespread looting occurs only in exceptional circumstances.

Rumours abound, particularly of epidemics. As a result, considerable pressure may be put on the authorities to undertake emergency humanitarian work such as mass vaccinations against typhoid or cholera, without sound medical justification. In addition, people may be reluctant to submit to measures that the authorities think necessary. During warning periods, or after the occurrence of natural disasters, people are reluctant to evacuate, even if their homes are likely to be or have been destroyed.

These patterns of behaviour have two major implications for those making decisions about humanitarian programmes.

1) Patterns of behaviour and demands for emergency assistance can be limited and modified by keeping the population informed and by obtaining necessary information before embarking on extended relief programmes.

2) The population itself will provide most rescue and first aid, take the injured to hospitals if they are accessible, build temporary shelters, and carry out other essential tasks. Additional resources should, therefore, be directed toward meeting the needs that survivors themselves cannot meet on their own.
Communicable Diseases

- The risk of epidemic outbreaks of communicable diseases is proportional to population density and displacement. These conditions increase the pressure on water and food supplies and the risk of contamination (as in refugee camps), the disruption of pre-existing sanitation services such as piped water and sewage, and the failure to maintain or restore normal public health programmes in the immediate post-disaster period.

- In the longer term, an increase in vector-borne diseases occurs in some areas because of disruption of vector control efforts, particularly following heavy rains and floods. Residual insecticides may be washed away from buildings and the number of mosquito breeding sites may increase. Moreover, displacement of wild or domesticated animals near human settlements brings additional risk of zoonotic infections.

- In complex disasters where malnutrition, overcrowding, and lack of the most basic sanitation are common, catastrophic outbreaks of gastroenteritis (caused by cholera or other diseases) have occurred, as in Rwanda/Zaire in 1994.

Population Displacements

- When large, spontaneous or organised population movements occur, an urgent need to provide humanitarian assistance is created. People may move to urban areas where public services cannot cope, and the result may be an increase in morbidity and mortality. If much of the housing has been destroyed, large population movements may occur within urban areas as people seek shelter with relatives and friends.

Example: Surveys of settlements and towns around Managua, Nicaragua, following the December 1972 earthquake indicated that 80% to 90% of the 200,000 displaced persons were living with relatives and friends; 5% to 10% were living in parks, city squares, and vacant lots; and the remainder were living in schools and other public buildings. Following the earthquake that struck Mexico City in September 1985, 72% of the 33,000 homeless found shelters in areas close to their destroyed dwellings.

- In internal conflicts, such as occurred in Central America (1980s) or Colombia (1990s), refugees and internally displaced populations are likely to persist.

Climatic Exposure

The health hazards of exposure to the elements are not great, even after disasters in temperate climates. As long as the population is dry, reasonably well clothed, and able to find windbreaks, death from exposure does not appear to be a major risk in Latin America and the Caribbean. The need to provide emergency shelter therefore varies greatly with local conditions.

Food and Nutrition

Food shortages in the immediate aftermath may arise in two ways. Food stock destruction within the disaster area may reduce the absolute amount of food available, or disruption of distribution systems may curtail access to food, even if there is no absolute shortage. Generalised food shortages severe enough to cause nutritional problems do not occur after earthquakes.

Flooding and sea surges often damage household food stocks and crops, disrupt distribution, and cause major local shortages. Food distribution, at least in the
short term, is often a major and urgent need, but large-scale importation/donation of food is not usually necessary.

In extended droughts, such as those occurring in Africa, or in complex disasters, the homeless and refugees may be completely dependent on outside sources for food supplies for varying periods of time. Depending on the nutritional condition of these populations, especially of more vulnerable groups such as pregnant or lactating women, children, and the elderly, it may be necessary to institute emergency feeding programmes.

**Water Supply and Sanitation**

Drinking water supply and sewerage systems are particularly vulnerable to natural hazards, and the disruptions that occur in them pose a serious health risk. The systems are extensive, often in disrepair, and are exposed to a variety of hazards. Deficiencies in established amounts and quality of potable water and difficulties in the disposal of excreta and other wastes result in the deterioration of sanitation, contributing to conditions favourable to the spread of enteric and other diseases.

**Mental Health**

Anxiety, neuroses, and depression are not major, acute public health problems immediately following disasters, and family and neighbours in rural or traditional societies can deal with them temporarily. A group at high risk, however, seems to be the humanitarian volunteers or workers themselves. Wherever possible, efforts should be made to preserve family and community social structures. The indiscriminate use of sedatives and tranquilizers during the emergency relief phase is strongly discouraged. In industrialised or metropolitan areas in developing countries, mental health problems are reported to be significant during long-term rehabilitation and reconstruction and need to be dealt with during that phase.

**Damage to the Health Infrastructure**

Natural disasters can cause serious damage to health facilities and water supply and sewage systems, having a direct impact on the health of the population dependent on these services. In the case of structurally unsafe hospitals and health centers, natural disasters jeopardize the lives of occupants of the buildings, and limit the capacity to provide health services to disaster victims. The earthquake that struck Mexico City in 1985 resulted in the collapse of 13 hospitals. In just three of those buildings, 866 people died, 100 of whom were health personnel. Nearly 6,000 hospital beds were lost in the metropolitan facilities. As a result of Hurricane Mitch in 1998, the water supply systems of 23 hospitals in Honduras were damaged or destroyed, and 123 health centers were affected. Peru reported that nearly 10% of the country’s health facilities suffered damage as a result of El Niño events in 1997-1998.

### 6.9 DISASTER RESPONSE

Disaster Response including emergency measure and life saving techniques are discussed below:

**Purpose**

- Response measures are those which are taken immediately prior to and following disaster. Such measures are directed towards saving life and
protecting property and to dealing with the immediate damage caused by the disaster.

- Response operations usually have to be carried out under disruptive and sometimes traumatic conditions. Often, they are difficult to implement and they tend to make heavy demands on personnel, equipment, and other resources. Thus, without a sound basis of planning, organisation, and training, response operations are unlikely to achieve optimum success.

**Important Characteristics of Response**

Effective response to the impact of disaster is critical mainly to:

- limit casualties,
- alleviate hardship and suffering,
- restore essential life support and community systems,
- mitigate further damage and loss, and
- provide the foundation for subsequent recovery.

**Some Problem Areas in Response**

1) **Background Factors**

These may particularly apply to preparedness, for instance lack of adequate policy direction, poor organisation, and inadequate planning.

2) **Inadequate Preparedness**

This can be caused by plans becoming outdated, low standards of readiness on the part of resource organisations, poor public awareness, and disaster of unexpected magnitude.

3) **Warning Factors**

These may include inadequate warning lead time, errors in warning systems (e.g., radio broadcast stations) due to effects of disaster impact, and failure of people to respond to warning.

4) **Slow Activation of the Response System**

This may be due to warning factors, poor system for activation, lack of functional readiness (e.g., in emergency operations centers), lack of testing and exercising the response system, and coincidence with some national event (e.g., national holiday).

5) **Effects of Impact and Crisis Pressure**

These may include disruption to or loss of communications, destruction or delayed availability of planned resources (e.g. transport, relief supplies), damage to key installations such as power supplies, emergency operations centers, communications facilities, high damage levels generally, and loss of key personnel.

6) **Difficulties in Survey of Damage and Assessment of Needs**

These may arise from adverse weather conditions following disaster impact (e.g., postcyclonic low cloud and heavy rain), lack of suitable aircraft for
survey purpose, difficulties of ground survey (perhaps caused by problems of access and movement), inadequate planning and preparation to cover this requirement, which has to cover a number of detailed aspects, and loss of vehicles or vessels.

7) **Inaccurate and/or Incomplete Information from Survey**

This can cause serious response problems through inaccurate figures of people who are homeless, without food and shelter, and in need of medical assistance.

8) **Convergence**

Convergence onto the disaster area or site by large number of people and vehicles can seriously interfere with response operations.

9) **Poor Information Management**

This may arise from a number of aspects, such as gathering and collation of information, evaluation of information, decision making, and dissemination of decisions and information.

10) **Inadequate Relief Commodities**

This may involve essential items, such as food supplies, water supplies, and shelter materials (tents, tarpaulins, etc.)

**Requirements for Effective Response**

Wide international experience has shown that effective response depends fundamentally on two factors information and resources.

Without these two vital components, the best plans, management arrangements, expert staff, etc. all become virtually useless. Bearing this fundamental premise in mind, the major requirements for effective response are summarised below.

**Readiness of Resource Organisations**

The readiness of resource organisations (both government and non-government) to respond to disaster situations, often at very short notice, is a very important requirement for response operations. Sometimes, failure on the part of only one designated organisation may seriously upset the total response effort.

**Warning**

The main needs for warning are initial detection, as early as possible, of the likelihood that a disaster will occur. Origination of the warning process as early as practicable, bearing in mind that false or unnecessary warning must be avoided. In this regard, however, precautions can be built into the warning sequence by ensuring that, where doubt exists, only key officials are initially informed.

- Effective means of transmitting warning information.
- Facilities to receive and assess warning information.
- Response decisions, as a result of assessing warning information.
- Dissemination of response decisions and, as appropriate, broadcast of warning information to the public. This preliminary reaction might include:
- Closing of schools, offices, and other public places;
• Checking emergency power supplies and similar facilities;
• Taking precautions in households to ensure supplies of food; and drinking water.

It is re-emphasised that preliminary reaction of this kind usually needs to be planned beforehand and, where necessary, the relevant information passed to disaster-related organisations and the public.

Evacuation

The evacuation of communities, groups or individuals is a frequent requirement during response operations. Evacuation is usually precautionary (in most cases undertaken on warning indicators prior to impact to protect disaster-threatened persons from the full effects of the disaster) or post-impact (to move persons from a disaster-stricken area into safer, better surroundings and conditions).

Activation of the Response System

For rapid and effective response, there usually needs to be a system for activating disaster management officials and resource organisations. It is useful to implement activation in stages. These might be Alert, Stand-by, and Action. The benefit of this arrangement is that if, after the initial warning, the disaster does not materialise, activation can be called off. Thus, full mobilisation of resources can be avoided and the minimum of disruption is caused to normal life. It is advisable for government departments and other resource organisations to work to this system of stages in their own internal plans.

Coordination of Response Operations

Coordination of the action taken in response operations is very important. Good coordination ensures that resource organisations are utilised to best effect, therefore avoiding gaps or duplication in operational tasks.

Communications

As with all aspects of disaster management, good communications are essential for effective response.

Survey and Assessment

It is virtually impossible to carry out effective response operations without an accurate survey of damage and consequent assessment of relief and other needs. To be fully effective, survey and assessment needs to be carefully planned and organised beforehand. It usually calls for:

• survey from the air,
• survey by field teams, and
• accurate reporting from disaster management and other official authorities in or near the disaster area.

Major Emergency Response Aspects

Following the impact of disaster, there are usually varying degrees of damage to, or destruction of, the systems which support everyday life. Communities therefore need help (usually urgently) to subsist through the emergency phase and beyond. Key aspects of this assistance include:
Rescue

To rescue persons who may be trapped in buildings and under debris, isolated by floodwaters, or need rescuing for any other reason.

Treatment and Care of Victims

To render first aid.

To ensure identification tagging of casualties.

To identify needs in terms of medical treatment, hospitalisation, and medical evacuation; and to deal with these accordingly.

To dispose of the dead.

Evacuation

To determine whether persons need to be evacuated from the stricken area immediately, or whether such a requirement is likely to arise later.

Shelter

To provide shelter for victims whose housing has been destroyed or rendered unusable. This may involve:

- making urgent repairs to some housing,
- issuing tents and/or tarpaulins to provide means of temporary shelter,
- groups of homeless people in community buildings such as schools.

Food

To organise and distribute food to disaster victims and emergency workers.

To estimate damage to crops and food stocks.

To estimate food reserves and available (including unharvested crops).

Communications

To re-establish essential radio, telephone, telex, and facsimile links.

Clearance and Access

To clear key roads, airfields, and ports to allow access for vehicles, aircraft, and shipping; also to prepare helicopter landing sites.

Water and Power Supplies

To re-establish water and power supplies, or to make temporary arrangements for them. Providing potable water is often difficult, particularly in the early post-impact stages. Water-purifying equipment might therefore have to be obtained and/or water purifying tablets to be issued.

Temporary subsistence supplies

To provide supplies such as clothing, disaster kits, cooking utensils, and plastic sheeting, to enable victims to subsist temporarily in their own area, thus helping reduce the need for evacuation.
Health and Sanitation

To take measures to safeguard the health of people in the stricken area and to maintain reasonable sanitation facilities.

Public Information

To keep the stricken community informed on what they should do, especially in terms of self-help, and on what action is on hand to help them.

To prevent speculation and rumor concerning the future situation.

Security

To maintain law and order, especially to prevent looting and unnecessary damage.

Construction Requirements

To estimate high-priority building repair and replacement requirements.

Disaster Welfare Inquiry

To make arrangements to handle national and international inquiries concerning the welfare of citizens and residents, including tracing of missing persons.

Maintenance of Public Morale

Depending on cultural and other local circumstances, to make arrangements for counselling and spiritual support of the stricken community. This may involve religious bodies, welfare agencies and other appropriate organisations.

Allocation of Tasks

If planning and preparedness have been properly carried out, the majority of response tasks, will have been designated beforehand to appropriate government departments and other resource organisations. For instance:

• Public works department to undertake debris clearance tasks, etc.
• Medical and health department to implement health and sanitation measures.
• Police to maintain law and order, and to assist with control of people and vehicles around the disaster area.
• Red Cross to carry out first aid and other emergency welfare assistance.

The disaster management authority may need to give attention to tasks such as emergency feeding and emergency shelter programmes, since these tend not to be in the normal day-to-day schedules of government departments and other organisations.

Priorities for the implementation of response tasks are usually decided by the appropriate level of disaster committee. These priorities may have to be changed frequently and both disaster management authorities and resource organisations need to be capable of accepting and implementing such changes.

Availability of Relief Supplies and Commodities

The ready availability of relief supplies and commodities is an important factor in effective response. After disaster impact, there is usually an urgent need to provide and distribute:

• food,
• drinking water,
• clothing,
• shelter materials,
• medical supplies and assistance.

Disaster management action therefore needs to cover two main areas:

• Obtaining the various commodities from government stores, emergency stockpiles, commercial supplies, and international assistance sources; and

• Organising the distribution of these commodities according to the best possible orders of priority.

In order to move towards safer national development, development projects should be sensitive towards disaster mitigation. With the kind of economic losses and developmental setbacks that the country has been suffering year after year, it makes good economic sense to spend a little extra today in a planned way on steps and components that can help in prevention and mitigation of disasters, than be forced to spend many multiples more later on restoration and rehabilitation. The design of development projects and the process of development should take the aspect of disaster reduction and mitigation within its ambit; otherwise, the development ceases to be sustainable and eventually causes more hardship and loss to the nation.

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<td>2) What are the items are recommended for inclusion in your basic disaster supplies kit?</td>
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6.10 LET US SUM UP

The combination of hazards, vulnerability and inability to reduce the potential negative consequences of risk results in disaster. A disaster occurs when a hazard impacts on vulnerable people. Vulnerability in this context can be defined as the diminished capacity of an individual or group concept is relative and dynamic. Disaster may be natural and man-made. Magnitude of disaster is the result of human activities or natural. Disaster preparedness can prevent a bad situation from becoming worse.
6.11 MODEL ANSWERS

Check Your Progress 1

i) Disasters can take many different forms, and the duration can range from an hourly disruption to days or weeks of ongoing destruction. Broadly speaking there are two types of Disasters i.e. **Natural and Man-made**.

ii) **Local Disasters** are limited to your property and/or local community. Examples would include tornados, which could level or otherwise severely damage your home and/or the homes of your neighbours.

iii) **Hurricanes and tropical storms**: Hurricanes and tropical storms are among the most powerful natural disasters because of their size and destructive potential. Tornadoes are relatively brief but violent, potentially causing winds in excess of 200 mph. Both earthquakes and tornadoes strike suddenly without warning.

**Earthquake**: Earthquake is a sudden and violent shaking of ground causing great destruction as a result of movement of earth’s crust. An earthquake has the potential to tsunami or volcanic eruption. Earthquake of magnitude 9.2 on the Richter’s scale in 2004 in Indonesia is the second largest earthquake ever recorded.

**Cyclone**: Cyclones (or more properly called Tropical Cyclones) are a type of severe spinning storm that occurs over the ocean near the tropics.

Check Your Progress 2

i) The reasons for community preparedness are:
   
   - Members of the community have the most to lose from being vulnerable to disasters and the most to gain from an effective and appropriate emergency preparedness programme.
   
   - Those who first respond to an emergency come from within the community.
   
   - Resources are more easily pooled at the community level and every community possesses capabilities. Failure to exploit these capabilities is poor resource management.
   
   - Sustainable development is best achieved by allowing emergency affected communities to design, manage and implement internal and external assistance programme.

ii) The following items are recommended for inclusion in your basic disaster supplies kit:

   - Three-day supply of non-perishable food.
   - Three-day supply of water – one gallon of water per person, per day.
   - Portable, battery-powered radio or television and extra batteries.
   - Flashlight and extra batteries.
   - First aid kit and manual.
   - Sanitation and hygiene items (soap).
   - Matches and waterproof container.
- Whistle.
- Extra clothing.
- Kitchen accessories and cooking utensils, including a can opener.
- Photocopies of credit and identification cards.
- Cash and coins.
- Special needs items, such as prescription medications, eye glasses, contact lens solutions, and hearing aid batteries.
- Items for infants, such as formula, diapers, bottles, and pacifiers.
- Other items to meet your unique family needs.

6.12 REFERENCES


11) UNICEF Emergency Handbook

12) SPHERE Standards

13) Hyogo Protocol