

## 10. Disaster Management



Observe and discuss.



### 10.1 Various news items about disasters



Can you tell ?

1. Is it possible to prevent the loss of life caused by lightning?
2. What should be done to prevent the bunds on a farm from getting washed away in the rainy season?
3. Why do we experience water-scarcity?

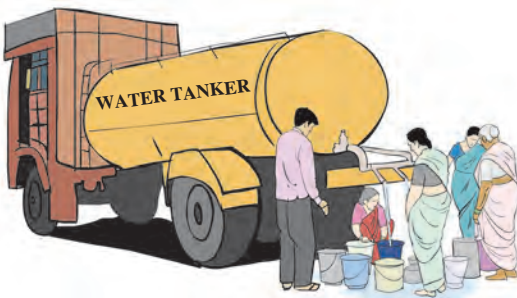
We have studied two types of disasters, namely, manmade and natural disasters. Into which categories do the disasters shown in the news items above, fall?

We can prevent certain disasters, while it is necessary to take precautions in the case of some other disasters. Natural and manmade disasters are related to each other.

Natural disasters such as famine, lightning strikes, cloudbursts, storms, etc. occur due to changes in the weather. There is the possibility of damage to property in such natural calamities. Who is to be held responsible for that? What can we do to deal with these losses?

### Famine

The condition that arises due to long term and severe scarcity of foodgrains and water is



### 10.2 Famine, water scarcity

called famine. Famines can be very severe. Although the main cause of famine is natural phenomena, yet a famine condition is created by some human activities besides some natural events.

### Think.

What would happen if no food were grown during one whole year?

### Causes of famine

Drought, heavy rains and flood, crops getting washed away or damaged in the flood, environmental changes such as temperature change, storms, cold waves or fog, damage of crops by animals like mice and rats, attack of pests, locusts or diseases of crops, a natural calamity like earthquake, etc. are some of the causes of famine. Of these, drought is the main cause. Man-made causes of famine include war, internal unrest, absence of transport routes, uncontrolled population growth, etc.

There are records of loss of life caused by severe famines in various parts of the world. Asia has turned out to be the most famine affected continent of the world. A majority of the famines occurred in drought prone and flood affected regions. Among the most dreadful famines that have occurred in the world, are the famines that affected India and China.

### Are we responsible for famine?

1. Water shortage is increasing as the balance between rainfall and population is disturbed.

2. Though there has been a very high rise in the production of foodgrains as a result of the green revolution, the balance of the environment has been lost due to use of chemical fertilizers, pesticides and weedicides.

3. Unlimited lifting of water.

4. Erosion of land.

5. Misuse of water.



### In the Past...

Famines are not a new phenomenon. The problems of drinking water, food, and fodder for animals date back to historic times. Chhatrapati Shivaji Maharaj and Chhatrapati Shahu Maharaj implemented many schemes to overcome the famines of their time. Their water supply and water storage schemes are ideal even in today's circumstances. You too can make schemes like these to face future crises and disasters, which will be of use not only in your own life in the future, but also for society at large.

Malik Ambar implemented a canal scheme for drinking water in Aurangabad. It exists even today. Collect more information about it.

### What can we do to ease the severity of a famine?

1. Planned usage of water and reuse of water.

2. Proper planning of water conservation and harvesting at the local level.

3. Large scale plantation of trees and prevention of deforestation.

4. Making appropriate changes in plans, taking into account the weather forecasts.

### Large scale tree plantation – No famine, no land erosion!

Compose a variety of such slogans and use them during Environment Awareness Rallies.

## Cloudburst



**Can you tell ?** What causes rain ?

Sometimes the water coming down from rain clouds does not reach the land in the form of rain. Instead, due to very high temperature near the land, it vapourizes and goes back into the same clouds. As a result the amount of vapour in those clouds becomes very high. Due to rapid condensation, it rains suddenly over a specific and small region at a rate of 100 mm per hour or more. This is known as a cloudburst.



**Do you know ?**

A cloudburst occurred at Leh (Ladakh) on 6th August 2010. The cloudburst that occurred in Mumbai on 26th August 2005 was extraordinary and unforgettable. On that day it rained about 950 mm, that is, 37 inches, in 8 to 10 hours, and the entire city of Mumbai was waterlogged and flooded.



**Use your brain power !**

Why shouldn't we wait at the foothill while it is raining heavily ?

## Flood



**Let's recall.**

What is meant by flood? What are the effects of flood?

We have already learnt about floods and the effects of floods. Collect information about the floods that have occurred at various places in Maharashtra in the last few years.



### Protective measures in view of floods

1. Construction of small dams in mountainous regions
2. Construction of percolation tanks
3. Making river beds flat
4. Cultivation of new forests
5. Connecting rivers

Government of India established the National Flood Commission in 1976. The Commission has made special efforts towards the control of floods. A plan regarding flood control is kept ready from national level to village level. Large scale damage of property and loss of life can be avoided because of this plan.

## Lightning



**Can you tell ?**

1. Have you seen a flash of lightning in the sky? When?
2. What causes lightning?

You have learnt about generation of electric charge and lightning strikes in the lesson on static electricity. In this lesson we shall learn something more about lightning and the measures for protection from it.



### Wonderful things to know!

#### Lightning temperature more intense than the sun

Not all lightning strikes the ground. In fact, about 95% of the lightning flashes are limited to the sky. Only 5% of lightning reaches the ground. Lightning can be generated within one cloud, between two clouds or between a cloud and the ground. About forty lightning flashes occur per second in the atmosphere. The temperature generated by lightning is higher than that of the sun. Due to this high temperature, the air under high pressure expands suddenly and a loud crashing sound is heard.



### Do you know?

#### Lightning strikes open ground maximum times

The world's mortality rate due to lightning is low. However, survivors of lightning strikes suffer long term effects. Immediate treatment of lightning affected persons can save their life. A study of places struck with lightning show that it happens more on open ground than under a tree or near water. Mishaps have occurred most often when a person is at a high place or near a tall object.

### What precautions will you take during thunder storms?

1. Do not stand on open ground or below a tree.  
Do not go to a high location or climb a tree.
2. Do not stand near an electric pole, a telephone pole, a tower, etc.
3. Do not lean on wired fences around a farm, a compound, a garden or a house.
4. If you are on a two-wheeler, a bicycle, a tractor or a boat, get off immediately and go to a safe place.
5. Do not gather all together in one place.
6. Take care to keep a distance of 15 feet between any two persons.
7. Do not use plugged in electrical appliances. Do not use a mobile or telephone.
8. Stand on dry wood, a plastic sheet, sack or jute cloth or dry leaves.
9. Keeping your feet together support yourself on the soles of your feet placing your hands on your knees and crouch low.
10. Swimmers or fishermen should immediately come out of the water.
11. A pucca house is the safest place. Find out if there is a lightning conductor on any tall building near your house. If necessary get a lightning conductor fitted on your house.

### My friend, the internet!

Visit the website [www.ndma.gov.in](http://www.ndma.gov.in) and compile information about disasters and disaster management.

## Volcano

A volcano is a natural event or phenomenon. The interior of the earth is very hot. Movement of hot substances continuously occur from the interior towards the surface of the earth. As a result, sometimes the solid, liquid and gaseous substances below the earth's crust are pushed towards the crust. When these substances come out of the earth's crust in an eruption and start flowing, it is called a volcano.



10.3 Volcano

### What are the effects of a volcano?

1. The chemical substances such as lava, vapour, hot mud, sulphur, etc. get collected on the surface of the earth and thereby mountains and hills are created.
2. The atmosphere gets polluted due to the ash and gases ejected by the volcano.
3. Often, it rains as a result of a volcanic eruption.
4. Temperature rises due to hot gases.
5. Forests and settlements get buried under the hot mud.

Volcanoes erupt in the sea as they do on land. The same substances that come out during the eruption of a volcano on the land are ejected during the eruption of a volcano in the sea. Some islands are created due to the eruption of volcanoes in the sea.

It is not possible to prevent the eruption of a volcano, to stop it after it erupts or to control it. However, by means of science and technology, it is possible to predict an eruption and to take immediate steps for disaster management.

## Tsunami



### Let's recall.

1. What is an earthquake?
2. What will happen if an earthquake and volcanic eruption occur at the bottom of the sea?

As on land, earthquakes and volcanic eruptions occur at the bottom of the sea, too. If an earthquake occurs at the bottom of ocean, the energy released pushes the water upwards. As a result of this, a peculiar type of waves are formed. These waves are not very high near the source, but they start spreading very fast to long distances. The velocity of these waves is 800 to 900 kilometre per hour. When they reach a coastal area, their velocity is reduced, but their height is found to have increased tremendously, even to about 30 metres.



10.4 Tsunami

Such a wave, generated by an earthquake or volcano occurring on the ocean floor, is called a 'tsunami'. 'Tsunami' is a Japanese word which means 'harbour wave'.

## Destructive effects of tsunami

1. Buildings and other constructions are destroyed.
2. There is large scale loss of life and financial loss.
3. Boats and ships near the coast get damaged.
4. Trees get uprooted. Landslides take place on a large scale.
5. Changes take place in the original land near the coast giving rise to swamps.
6. Traffic obstructions arise.
7. The business/industry related to the sea are adversely affected and normal day-to-day life is disrupted.
8. Large scale damage is caused to harbours.

## Precautionary measures

When a tsunami wave is formed due to an earthquake on the sea floor, it is necessary that an immediate estimate is made of its progress and a warning of the danger is issued to the people in the coastal area. For this purpose, an artificial geostationary satellite is of great use.

## Storms



### Let's recall.

What gives rise to a storm?  
What are their effects?

We have already learnt about the formation of storms and their effects. Suppose, you are caught in a storm. What will you do to keep yourself safe?



### Always remember –

1. Regularly cut down trees or branches that are likely to fall and cause damage.
2. If you are outside, take shelter in a safer place.
3. If you are away from home, inform your close relatives and friends about your exact location.
4. At home, shut the valves of gas regulators and turn off the electric supply.
5. Make telephone calls to warn your relatives and friends about the probable danger. Tell them to go to a safer place.
6. Give temporary shelter to people who are far away from their homes.

## National Institutions

United Nations established a standing international organisation (UNDP) in 1965. About 177 nations from all over the world are members of the the UNDP. One of the main functions of this organization is to send equipment, financial aid and also volunteers to the place of the distater. In addition, international medical teams and groups of other experts are also sent.

**Note:** Refer to the lesson on 'Winds' in the Std VII in the Geography textbook and read the part about storms.

**13<sup>th</sup> October**  
**International Day for**  
**Disaster Reduction**

## Techno-support

With the help of your teacher prepare a power point presentation on 'Effects of Natural Calamities and Measures for their Management' and present it in the class.



**1. Find the odd man out.**

- (a) Famine, earthquake, cloudburst, railway accident.
- (b) Drought, heavy rains, storm, tsunami.
- (c) Lava, hot mud, ash, locusts.
- (d) Washing away of crops, attack of pests on crops, volcano, singeing of crops

**2. What are the remedial measures for the following calamities ?**

- (a) Famine
- (b) Lightning strike
- (c) Storm
- (d) Cloudburst

**3. True or false? Give reasons for your answer.**

- (a) Information about a forthcoming storm is to be kept secret.
- (b) You should not swim when there is lightning in the sky.
- (c) It is possible to prevent the eruption of a volcano.
- (d) Heavy rains result in famine.

**4. Write answers to the following questions in your own words.**

- (a) What is a tsunami? What gives rise to a tsunami?
- (b) What is a cloudburst?
- (c) Explain the effects of a volcano.
- (d) What are the measures to prevent loss of life due to lightning?

**5. What measures have been taken to deal with calamities such as floods and landslides under the disaster management programme in Maharashtra?**

**6. With reference to disaster management what are the things in your house that you will check?**

**Project :**

- 1. With the help of the internet, collect information about the places where a calamity has occurred.
- 2. Collect information from the internet about how cyclonic storms are named.

