

Chapter- 15

Natural disasters

STUDY NOTES

Let's learn

Introduction

Events caused by forces of nature that cause heavy destruction to life and property are called **natural disasters or natural calamities**. The most common natural disasters are earthquakes, floods, droughts, cyclones, and tsunamis.

Earthquake

- An earthquake is the sudden trembling or shaking of the surface of the earth.
- Earthquakes range in strength from mild tremor that can barely be felt, to violent movements that cause massive destruction of life and property.
- The strength of an earthquake can be measured using the Richter scale.
- The Richter scale measures the strength of an earthquake on a scale of 1 to 9.

Richter scale reading

Intensity of the earthquake

1-4

Minor earthquake

5

Moderate earthquake

6

Strong earthquake

7

Major earthquake

8

Great earthquake



The effects of an earthquake

- Damage to life and property.
- Disrupt power and water supply to affected parts.
- Can cause landslides and even tsunamis.

Precautions

- Move out to open areas through emergency exit doors.
- Avoid using lifts and elevators.
- Stay away from solid structures, like lamp posts, and electric transformers.
- If stuck indoors, take shelter under a sturdy table or desk.

Floods

Floods occur when the water in rivers rises and overflows on to the river banks.

They are caused by ---

- Heavy rainfall during the rainy season.
- The melting of snow during summer.

They can also be caused by human actions, like deforestation, and the letting out of extra water from the reservoirs at dams.

In India, the states of Assam, West Bengal, Odisha, Bihar and Uttar Pradesh often face the fury of floods.



The effects of floods

- Both human and animal lives lost during floods.
- Destroys crops and property.
- People lose their homes.
- There can be shortage of drinking water and food.
- The waste left behind by the flood water can cause epidemics.

But floods are also a blessing for farmers. They cover the ground with rich silt which makes the land suitable for agriculture.

Precautions

- Place sand bags in front of the house to prevent water from entering the house.
- Move to higher ground where the water cannot reach.
- In flood-prone areas, an emergency kit containing strong ropes for tying things, a radio, a torch and spare batteries, stocks of freshwater and food should be kept handy.
- All the electrical appliances in the house should be switched off and unplugged.
- In flood-prone areas, all the dams should be checked and maintained on regular basis.
- More trees should be planted along river banks to control the flow of water.

Drought

- A drought is caused by the lack of water due to very little or no rainfall over a long period.
- The drought-prone areas in India are Rajasthan, Gujarat, Maharashtra, Karnataka, Odisha and Madhya Pradesh.
- Sometimes drought can be human made.
- When trees are cut indiscriminately, the land often becomes dry and drought-prone.



The effects of drought

- Animal and people start dying due to lack of water.
- Drought can lead to famine-widespread hunger because crops fail due to the lack of water.

Precautions

- More number of trees should be planted.
- Rainwater harvesting should be adopted in drought prone areas.
- Drought resistant crops, such as millets and maize, should be cultivated.
- Crops stored by the government can be used to feed the hungry and thus avoid famine.

Cyclones

- A cyclone is a massive storm that brings with it fierce winds and heavy rain.
- The winds in a cyclone can reach speeds of over 60 km per hour.
- Cyclones usually form over warm oceans and seas in the tropical regions.
- They suck up moist air as they spiral towards land with great force and speed.
- When they hit the coast, they cause widespread destruction.



The effects of cyclones

- Cyclones damage standing crops, and property.
- Severe cyclones can cause massive waves which flood coastal areas leading to loss of lives and destruction of property.

Precautions

- If a warning for cyclone has been issued, people should listen to the television or radio for further updates.
- The shortest and fastest routes to reach the safe shelters should be identified.
- People living in cyclone prone areas should always have an emergency kit ready.
- People should not venture in or near oceans and seas if a warning for cyclone has been issued.

Tsunamis

- Tsunamis are giant waves caused by earthquakes, volcanic eruptions or landslides that occur on the ocean floor.
- The word “tsunami” means “harbour waves” in Japanese.
- In the deep ocean, these waves are not big, and cause no damage.
- As they approach the shallow waters of the coast the waves become bigger and more dangerous.
- Tsunamis can cause tremendous damage when they reach land.



The effects of tsunamis

- A tsunami can cause loss of human and animal life, and damage property. It also contaminates land and water. The water becomes salty and unfit to drink, while the soil is destroyed by the sea water.
- After the tsunami retreats, the dirty water left behind can cause diseases and epidemics.

Precautions

If you are caught up in a tsunami:

- Try to reach higher grounds.
- Try to learn the warning signs of a tsunami, such as the sudden retreat of the sea following an earthquake.
- Never return to the affected area, until declared safe by the authorities.

Disaster Management

- Taking care of the after-effects of a disaster, and taking steps to prevent its recurrence, is called disaster management.
- This responsibility is mainly shared by the Government and voluntary agencies called Non-Governmental Organizations (NGOs).



MEMORY MAP

NATURAL DISASTERS

EARTHQUAKES - A sudden trembling or shaking of the surface of the earth.

FLOODS - Overflowing of rivers and submerging of nearby areas.

DROUGHTS - A long period with little or no rain which causes shortage of food and water.

CYCLONES - Violent storms in which strong winds move in circles.

TSUNAMIS - Giant ocean waves caused due to sudden movements under the Earth's surface.

Let's know more**Fill in the blanks:**

- An instrument that measures earthquake tremors is called_____.
- The world's deadliest recorded earthquake occurred in 1556 in_____.
- A sudden, very heavy burst of rainfall over a small area is called a_____.
- In the Atlantic Ocean, cyclones are known as_____.
- In March 2011, a massive earthquake measuring 9 on the Richter scale hit_____.

Let's Do**A. Write T for true and F for false sentences:**

1. During an earthquake, it is best to take shelter under a tree.
2. The flood waters of a river are beneficial for the soil.
3. Flooding due to cyclones occurs in coastal areas.
4. A tsunami is a massive earthquake.
5. Deforestation increases rainfall and reduces the incidence of drought.

B. Fill in the blanks:

1. A flood is a natural _____.
2. _____ are caused by tremors inside the Earth's surface.
3. A _____ is very strong wind with very heavy rain in coastal areas.
4. Diseases are likely to break out after floods due to _____ after the flood waters recede.
5. The intensity of an earthquake is measured on the _____ scale.
6. An earthquake under the sea bed can cause a series of high waves in the sea called a _____.

Multiple choice questions.

1. Which of these is not a natural disaster?
 - a. Fire in a forest caused by lightning
 - b. Fire in a house caused by electrical short circuit
 - c. Flooding due to tidal waves in the sea
 - d. Drought caused by lack of rain
2. Which is the safest place during an earthquake?
 - a. In the open, away from tall buildings and trees
 - b. At home under a table
 - c. At home on the roof
 - d. Under a tree

3. Which of these gets affected during floods?
- a. Crops b. roads c. transport d. all of these
4. A cyclone causes:
- a. Floods b. earthquake c. fires d. drought
5. Deforestation makes a region more prone to (more than one answer could be correct)
- a. Earthquakes b. floods c. drought d. cyclones
6. Which of these will not help prevent a drought?
- a. Deforestation b. building of dams c. water harvesting d. afforestation

Understand and Answer

C. Answer the following questions.

1. What is a natural disaster?
2. Why do earthquakes occur?
3. What should you do if you feel an earthquake while you are in the house?
4. Give two reasons why floods occur.
5. What is a cyclone?
6. What steps can be taken to prevent the occurrence of drought?
7. Why is there food shortage during a drought?
8. What are the possible causes of a tsunami?
9. Name two non-government organizations that help people during a natural disaster.

Teacher's Note

Natural disasters are nature's way of warning human beings of their actions which harm the environment. How can human beings help in reducing the occurrence of natural disasters?

Improve your GK

Fill in the blanks:

- The rank of India is second in the world for natural disasters after China.
- A geophysicist who studies earthquakes and the mechanical characteristics of the

Earth is called seismologist.

- A place where an earthquake originates is called the focus.
- As the magnitude of natural disasters increases their frequency of occurrence decreases.
- Powerful tsunamis are most frequently produced by Earthquakes.

ANSWER KEY

Let's Know More

Fill in the blanks:

- Seismograph
- Central China
- Cloud burst
- Hurricane
- Japan

Let's Do

1. T
2. F
3. F
4. F
5. T

1. Disaster
2. Earthquake

3. Cyclone

4. Unhygienic conditions

5. Richter

6. Tsunami

MCQ

1. a. Fire in a forest caused by lightning
2. a. In the open, away from tall buildings and trees
3. d. all of these

4. a. Floods

5. c. drought

6. a. Deforestation

Understand and Answer

C. 1. A natural disaster is a calamity caused by nature. Floods, volcanic eruptions, tsunamis, droughts and hurricanes are all examples of natural disasters.

2. An earthquake is a sudden tremor on the Earth's surface. It is caused by movements deep inside the Earth.

3. a. Run out of the building immediately. The safest place is outside, away from buildings & tall trees, where nothing will fall on you.

b. If you are unable to run out, take shelter under a table to protect yourself from falling objects.

4. a. When it rains a lot, rivers fill up with water and start rising above their banks. The water then overflows into nearby land causing floods.

b. Floods in the Northern Plains are also caused by the melting of snow in the mountains during summer.

5. a. A cyclone is a very strong wind accompanied by very heavy rain.

b. The strong wind often causes high waves, called tidal waves in the sea.

6. a. Afforestation or the planting of trees, increase rainfall and reduces the incidence of drought.

b. Water harvesting can increase the underground water level and help us in times drought.

7. a. During drought rivers and ponds dry up and crops cannot grow.

b. Sometimes, the rain fails during the monsoon in some regions.

c. This causes severe shortage of water in the region.

8. The possible causes of tsunami are underwater earthquake, volcanic eruptions or landslides.

9. The non-government organizations that help people during a natural disaster are Red Cross Society, World Health Organization (WHO), and United Nations Children's Fund (UNICEF).