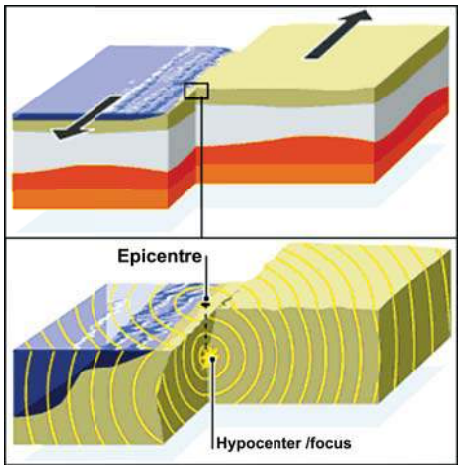
5 NATURAL DISASTERS

On 12th March, 2011 Krishna saw the pictures of a tsunami in the newspaper. After reaching school, she asked her class teacher, “Sir, I read the news about tsunami in the newspaper. How does a tsunami occur?” Sir replied, “Natural disasters are of two types. Disasters like earthquake, tsunami and volcano occur due to the changes in the interiors of the Earth, whereas disasters like floods, cyclone, forest fires, drought, etc. occur due to the changes on the surface of the Earth.”

Earthquake

The weak upper crust of Earth suddenly experiences tremors either due to collision of plates or due to the tremendous pressure in the interior of the earth. Waves/tremors of earthquake originate from its hypocenter which is deep down below the surface of the earth. Such sudden shaking or trembling is known as an ‘earthquake’. Earthquake waves are created from the epicenter during the process of an earthquake. Earthquake occurs due to internal disturbance in the earth.



5.1 The disturbance on surface due to earthquake

5.2: Scenes of destruction due to earthquake

The waves of earthquake spread outward from the epicenter. The point on the surface of the earth exactly above the hypocenter/focus is known as the epicenter. The intensity of the earthquake is felt the maximum around the epicenter. The intensity of the earthquake decreases as we move away from the epicenter. The effects of an earthquake depend on the intensity of the earthquake. We can measure the intensity of the earthquake and know its point of origin/hypocenter with the help of a Seismograph. There are three main reasons for the occurrence of an earthquake:
(I) earthquake caused by volcanic eruption (II) earthquake caused by Strike-slip faults (III) earthquake caused by Subduction in an active subduction zone.

The center of the earth is approximately 6371 kms for form earth's surface.

Think

- ***How can you be helpful to others if there is an earthquake in your area?***

Volcano

Volcano refers to an opening in the Earth's crust from which motion lava, rock fragments, ashes, dust and gases are ejected form below the Earth surface.

5.3 Dormant volcano

5.4 Active volcano

Volcanic eruption occurs due to four main reasons: (1) High temperature in the interior of earth (2) Creation of magma (3) Creation of gases and vapour (4) Rising of magma towards earth's surface.

The magma is pushed upwards by the gases lying under the magma. Secondly, the water percolating through the cracks and openings of weak rock surface turns into vapour. This vapour is full of pressure owing to lack of space and tries to come out with great force. This vapour also causes magma to rise upwards. The gases present in the magma reach near the surface of the earth and erupt with a high pressure in the form of lava, ash, gases, rock pieces of various shapes and sizes etc. and this is known as a volcano. All these volcanic residuals come on the surface of earth and form a mountain like structure. If the amount of gases and vapour is more and the vent on the earth's surface is narrow, then the eruption is dangerous. But if the amount of gases is less and the vent is broad and long, then the molten lava comes out slowly and spreads itself on the earth's surface.

There are three types of volcanoes:

(1) Active volcano **(2) Dormant volcano** **(3) Extinct volcano**

Volcanoes are found at various places in the world. There is only one active volcano in India and that is in the islands of Andaman and Nicobar. Volcanic eruption at any place or region leads to massive destruction in the local area.

Volcanoes have certain benefits too. The fertility of land increases due to lava. The agricultural production is very good due to fertile land in Java and Sumatra, as it is made of lava. The potassiun rich soil from the volcanic residuals helps the farmers to obtain abundant crop production. The hot water springs in the areas of volcano have germ-killing property and that cures skin diseases. At a lower depth from surface of earth, certain minerals like mercury, tungsten, tin-plating, zinc aluminium, etc. can be obtained easily due to volcano.

The lava that cools down inside the vent of extinct volcano turns it into diamonds with the passage of time. The small rocks thrown out during volcanic eruption known as 'Lapilli' which have been proved to be very useful as they can be moulded easily.

Think

- ***Would you like to live in a region of volcano? Why?***

Tsunami

Due to volcanic eruption or earthquake on the sea floor, high oceanic waves are created. They are known as tsunami. They are high and have unimaginable length.

5.5 Scenes of oceanic waves of Tsunami

Their length is approximately 700 to 1600 kms. These waves travel with a great speed and force. By the time they reach the coast, they attain great height and power which causes a great deal of destruction in the coastal regions. It was witnessed on 11th March, 2011 in Japan.

Strong and whirling winds also create big and strong waves. Once the storm gets over, these waves become tall with a high wavelength which can travel great distances. Such waves cause a great deal of destruction in the coastal regions. Hence they are known as the destructive waves. At times, rock falls, ice-falls or underwater landshslides or slumps can generate displacement of water to create a tsuanami.

Think

- *If your house is near the seashore and the government warns you about tsunami, what will you do for your protection?*

Flood

5.6 Scenes of destruction due to flood

The flow of excess of water in a river is called flood. Flood occurs due to two reasons: (1) Heavy rain in the upper course of a river (2) If a dam on river breaks, flood occurs in the low lying areas on the river bank.

Thing to Know

Name of the river	*Flood affected area*	*Year*
Ganga, Yamuna	*North India*	*1978*
Macchhu	*Morbi*	*1979*
Tapi	*Surat*	*2006*
Koshi	*Bihar*	*2008*

Famine

5.7 Scenes during the time of Famine

Scanty rainfall leads to the drying up of the ground water and shortage of food and water. This condition is known as famine. The condition of famine occurs in case of scanty rainfall or no rainfall for 2 to 3 years succesively. The possibility of famine is less if we plant more trees.

Cyclone

The simple meaning of cyclone is air which blows at a great speed. It can be called a storm or whirlwind. The coastal areas of India experience cyclone every year. The Eastern coast especially experiences it every year. The adjacent regions also feel the effects of cyclones when it is at its highest intensity. However, these winds affect a limited area for a limited period of time only.

5.8 Scenes of Cyclone

Think

- ***How will you respond to the situation if the warning for a cyclone is given?***

Forest Fire

5.9 Scenes of Forest Fire

Friction between dry branches of trees and other factors cause forest fire. It causes a great amount of damage to the forest resources.

Landslide

5.10 Scenes of Landslide

The sliding of large mass of rock material, soil, etc. down the side of a mountain or cliff, is termed as Landslide. Two factors cause landslide excessive rainfall or an earth-quake. For example, in the rainy season, the railway transportation in Konkan gets obstructed due to landslides.

EXERCISES

Q.1 Answer the following questions

1. Can the disasters mentioned in this unit be called as geographical events? Why?
2. How can you get information about disasters from government?
3. What are the advantages of living in a volcanic region? How?
4. Your friend's village has been affected by flood. What will you do to help him?
5. Which areas experience landslide more frequently? Why?
6. What efforts should be made to prevent drought/famine from occurring?

Q.2 Fill in the blanks with appropriate words

1. The origin of an earthquake is known as .....
2. The forest resources get depleted due to .....
3. Often ..... strikes in the coastal regions of India.
4. Due to landslide, ... railway gets frequently obstructed.

Project

Prepare a chart with information and pictures of any one natural disaster that has occurred in the recent past.