11th Geography Lesson 6 Notes in English

6. Natural Disasters - Public Awareness For Disaster Risk Reduction

Introduction

- On an average, 232 million people are affected by **different types of disasters** every year.
- In recent years **disaster risks** have been on the **rise** due **to factors** such as population growth, unplanned urbanization, environmental degradation, conflicts and competition for scarce resources, climate change, disease epidemics, poverty and pressure from development within **high-risk zones.**
- Hence, disaster risk reduction is the need of hour.
- Recognizing the importance of **Disaster Risk Reduction in 2005,** 168 governments and all leading development and humanitarian actors signed the **Hyogo Framework for Action (HFA),** committing themselves to a **ten-year multi-stakeholder** and **multi-sector** plan to invest in disaster risk reduction as a means to building disaster-resilient societies.
- **Public awareness campaigns** can be started modestly and tailored to meet the needs of specific populations and target groups.
- These approaches can be integrated into almost all existing initiatives, whenever and wherever they take place.
- They can build on and support existing volunteer mobilisation and **peerto- peer communications**.
- To support this, it requires strong and unified disaster reduction messages and clear and targeted information, education and communication materials.

Public awareness for disaster risk reduction

- There are four key approaches to public awareness for **disaster risk reduction**: **Campaigns, participatory learning, informal education,** and **formal school based interventions.**
- Let's take formal school based interventions to learn in detail. **Formal school-based interventions:**

- The focus of **formal school-based interventions** cover two areas: school disaster management and disaster risk reduction in school curricula.
- These are considered to be formal because accountability and responsibility for school safety and curricula belong exclusively to education authorities, so they require support for long-term planning and capacity building.
- **School disaster management**: The primary goals of school disaster management are to ensure the safety of students and staff.
- **Sustained school disaster management** requires the familiar participatory and ongoing process of identification of hazards and risks, mitigation and reduction of risks, and developing response capacity.
- **A school disaster management plan,** developed at the school level, should be the living document that expresses the awareness of public for disaster risk reduction.
- Every school has to setup the following school disaster committees:
  1. **Coordination Committees**
  2. **Awareness generation** Team
  3. **Search Rescue** and Evacuation Team
  4. **Site safety** Team
  5. **First Aid** Team
  6. **Warning** and Information Team
  7. **Bus safety** Team
  8. **Water / Food Arrangement** Team.
- All the teams should participate in the mock drill.

Mock drills

- **Mock drills** form a vital part of the **school disaster management process**, and provide an intensive **learning experience**.
- They should be followed by **reflection and assessment** by all members of the **school community**.
- Lessons learned are incorporated into the **school disaster management plan**, and **goals** set for improvement next time.
- Depending on hazards faced, there are several **major types of drills** that can be practiced:

Disasters and Rules of actions during disasters

Earthquake

- An earthquake is sudden, rapid **shaking of the ground** caused by the shifting of rocks beneath the earth's surface.
- Earthquakes strike suddenly **without warning** and can **occur at anytime**.
- The impacts of the earthquakes include **deaths, injuries** and **damage of property**.

- You have learned about occurrence of the earthquake and other related information in the earlier part of the book.

Rules of actions during an earthquake:

1. Stay **calm**, do not panic.
2. If you are in a building, **sit down on the floor under a table** or any other furniture and firmly hold on to it until the earthquake has stopped.
3. If there is no table nearby, **cover your face and head** with your hands and **sit** on the floor in a **corner of the room**.
4. Keep away from glass windows, glass doors and things that can fall down.
5. Do not try to **leave the building quickly**; during earthquakes people mostly die because they try to run out of the building and become trapped under ruins if the building is destroyed.
6. Do not go to the staircase, a balcony or an elevator.
7. If you are in the street, **keep away from buildings**; try to get into an open space and avoid power transmission lines.
8. If you are at home, **turn off electrical equipment** and gas quickly.
9. If you are in **chemistry class or a laboratory** where chemicals are stored, try to **leave** the room because chemicals may cause injuries;

Nepal – India Earthquake

- The April 2015 **Nepal Earthquake** (also known as the **Gorkha Earthquake**) killed nearly 9,000 people and injured nearly 22,000.
- It occurred on 25 April, with a magnitude of **8.1 Richter scale**. Its **epicentre** was east of Gorkha District at Barpak.
- It was the **worst natural disaster** to strike Nepal since 1934 **Nepal–Bihar earthquake**.
- The earthquake triggered an **avalanche on Mount Everest**, killing 21 people making April 25, 2015 the **deadliest day on Nepal's history**.
- The earthquake **triggered another huge avalanche** in the **Langtang Valley**, where 250 people were reported missing.

Nepal Earthquake, 2015

After earthquake:

1. First **check** if you have any **injuries**, and then check the **condition** of the **surrounding** people. If you cannot do this, wait for the **rescue team**;
2. After the earthquake when you leave the shelter, **do not return** for **2-3 hours** because the quakes may repeat (an aftershock).
3. Check if there is **fire**; in case of a mild one try to **extinguish** it.
4. **Be cautious** about the possibility of **gas leakage** and damage caused to **electrical wiring**.
5. Be **careful** while **opening wardrobe doors** to take necessary items;
6. Use only **lanterns**; do not use an oil lamp or a candle.
7. Listen to the **radio to receive information** about the earthquake.

Landslide

- A landslide is defined as the **movement of a mass of rock debris** down a slope.
- Landslides are caused by the **direct influence of gravity**.
- Landslides can be **caused by** rainfall, snowmelt, stream erosion, and flood, earthquakes, volcanic activity, disturbance by human activities, or any **combination** of these **factors**.
- Landslides cause property damage, injury and death and adversely affect a variety of resources.
- For example, water supplies, fisheries, sewage disposal systems, forests, dams and roadways can be affected.

Drop, Cover and Hold –Mock Drill

During a Landslide

- Listen for any **unusual sounds** that might indicate **moving debris**, such as trees cracking or boulders knocking together.
- If you are near a river, be **alert** for any **sudden increase** or **decrease in water flow** and for a change from clear to muddy water.
- Such changes may indicate landslide activity upstream, so be prepared to move quickly.

- Be **alert** especially when **driving**. Embankments along roadsides are particularly susceptible to landslides.
- **Disconnect** the **power supply** in the areas of landslide.

After the Landslide

1. **Stay away** from the slide area. There may be danger of additional slides
2. **Check for injured** and **trapped persons** near the slide, without entering the direct slide area.
3. **Direct rescuers** to their locations.
4. **Listen to local radio** or television for the latest emergency information
5. **Watch for flooding**, which may occur after a landslide or debris flow.

Cyclone

- The **major natural disaster** that affects the **coastal regions of India** is cyclone and as India has a coastline of about 7516 km; it is exposed to nearly 10 percent of the world's tropical cyclones.
- About **71 percent of flood prone areas** are in **ten states** (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Pondicherry, Andhra Pradesh, Orissa and West Bengal).
- The islands of **Andaman, Nicobar** and **Lakshadweep** are also prone to cyclones.
- **Districts in Tamil Nadu** which are **frequently affected** by cyclones:
- All the **13 coastal Districts of Tamil Nadu** are affected by cyclonic storms which occur during **May- June** and in **October-November** months.
- These Districts are: Tiruvallur, Chennai, Kancheepuram, Villupuram, Cuddalore, Nagapattinam, Tiruvarur, Thanjavur, Pudukkottai, Ramanathapuram, Tuticorin, Tirunelveli and Kanniyakumari.

Forces of Cyclonic Wind

- On an average, about **five or six tropical cyclones** form in the **Bay of Bengal** and **Arabian sea** and hit the coast every year.
- Out of these, **two or three are severe**.
- When a **cyclone** approaches to the coast, a **risk of serious loss** or **damage** occurs from **severe winds, heavy rainfall**, **storm surges** and **river floods**.

- The effect of a storm surge is most pronounced in wide and shallow bays exposed to cyclones such as in the **northern part of Bay of Bengal.**
- Most cyclones occur in the **Bay of Bengal** followed by those in the **Arabian Sea** and the **ratio** is approximately **4:1.** During the cyclonic of **cyclonic storms**, **wind speed** is between **65 km/h and117 km/h.**

Effects of Cyclone

Rules of action before a cyclone

1. Go to high-lying places from **low-lying areas**
2. Those residing in old buildings should temporarily **relocate to safer buildings**; Jewels and documents should be kept in safe custody.
3. Battery-operated radio, plastic torchlight, lamp, kerosene, match-box should be kept **safely for future use.**
4. Keep in ready all the **first-aid kit** and material available with you.
5. Keep in **stock foodstuffs**, material, **fuel**, drinking **water** and **life-saving drugs** needed for the next week.
6. It is also important to take **cattle** and other **pets to safer places**.
7. It is important to know that if we see quickly approaching storm clouds it is possible to **predict strong winds** several minutes in **advance**.

During a cyclone

1. If you are in a building during a strong gust, it is necessary to close and fasten windows and doors. It is better to **stay in the rooms**.
2. **Turn off** all **electrical devices**.
3. **Protect** yourself with your hands or a **scarf**. Protect the **eyes, nose** and **mouth** from dust.
4. If you are in a **wildlife area**, try to find a place protected from the wind. If there is no such place nearby, **lie down on the ground**.
5. If you are in a **car** it is better to stay there and **close the windows**. Do not park the car under unstable objects that can break down and fall on the car.

After cyclone

1. **Turn off electricity**, gas and water and unplug all electric appliances.
2. **Beware of** snakes and other **animals** immediately after the cyclone.
3. **Do not** go for **sightseeing**.
4. **Stay away** from damaged power lines, falling trees and flood water.
5. **Boil** and **purify water** before drinking.

Fact File

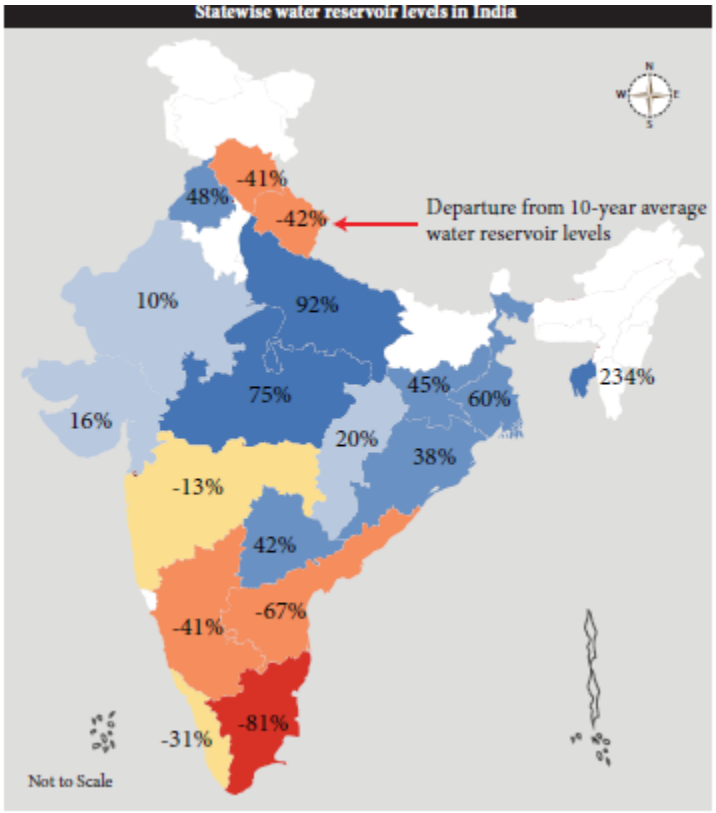
- Tropical Cyclone **Vardha** hit **Chennai** on 12 December, 2016.
- **National Disaster Management Authority** (NDMA) reports that at least 10 people have died in Tamil Nadu.
- Maximum sustained **wind speeds** of over **130 km/h** were recorded, and the storm has caused severe damage to parts of the city of Chennai.
- Over **4,000 trees** have been **uprooted**, power lines downed and buildings damaged. NDRF teams clear up damage after Cyclone Vardha. Photo: NDRF

Vardha Cyclone

Flood

- Flood destructions have always brought miseries to numerous people, especially in **rural areas.**
- Flood results in the outbreak of serious epidemics, specially **malaria** and **cholera**.
- Simultaneously, **scarcity of water** also arises. It has a drastic effect on agricultural produce.
- Sometimes, water remains standing over large areas for long span of time hampering the **Rabi crops.**
- **India** is one of the **most flood prone** countries in the **world**.
- The principal reasons for flood lie in the very nature of natural ecological systems in this country, namely, **the monsoon**, the highly silted river systems and the steep highly erodible mountains, particularly those of the **Himalayan ranges**.

- The **average rainfall** in **India is 1,150 mm** with significant variation across the country.
- The annual rainfall along the western coast and the **Western Ghats, Khasi hills** and over most of the **Brahmaputra valley** amounts to more than 2,500 mm.
- **Twenty-three of the states** (29) and **union territories** (6) in the country are subject to floods and **40 million hectares of land**, roughly one eighth of the country's geographical area, is **prone to floods**.
- The **National Flood Control Program** was launched in the country in **1954.**



Statewise water reservoir levels in India

Do's before flood

1. **Keep furniture** and **electrical appliances** on beds and tables
2. Put **sandbags** in the toilet bowl and cover all drain holes to prevent sewage back flow.
3. Keep your **mobile charged**
4. **Listen to radio** or **watch television** for the latest weather bulletin and flood warnings.
5. Keep strong **ropes**, a **lantern**, battery operated **torches**, extra batteries ready.
6. Keep **umbrellas** and **bamboo sticks** with you for protection from snakes.

Drought

- The above map shows most the **acute shortage of water** in **Tamil Nadu** in 10 years.

- **(2017) Drought** is a period of time (months or years) during which a part of the land has shortage of rain, causing **severe damage** to the soil, crops, animals, and people.
- It sometimes causes even **death**.
- During **drought high temperature** is experienced.
- Such conditions may **affect** our **health**.

Crops affected by Drought

- The primary cause of drought is **deficiency of rainfall** and in particular, the timing, distribution and intensity.
- In India around **68 percent of the country** is prone to drought.
- Of the entire area **35 percent receives rain falls** between 750 mm and 1,125 mm which is considered drought prone while 33 percent areas receive rainfalls less than 750 mm is considered to be chronically drought prone.

Rules of action before, during and after Drought

Before drought:

1. **Rainwater harvesting** should be followed.
2. **Sewage water** should be **recycled** and used for domestic purpose.
3. **Building canals** or redirecting rivers for irrigation.
4. **Utilise water** economically.

Drought Condition

During drought:

1. Wear **cotton clothing** and a hat.
2. In case of overheating, immediately **move** to a **shady area**.
3. **Consume** adequate amounts of **water** stay.

After drought:

1. If anyone faints after **sunstroke**, **emergency** medical measures should be taken.
2. **Contact local government** agencies to receive information about disaster and assistance for the population.

Lightning

- Lightning is an **atmospheric electrostatic discharge (spark)** accompanied by thunder, which typically occurs during thunderstorms, and sometimes during volcanic eruptions or dust storms.
- Lightning generates **10-20 ampere current** and it is therefore fatal. It is especially dangerous for people in an open area.
- Lightning **strikes** often have **fatal consequences**. On an average, 2000 people die from lightning in the world every year.
- Lightning mostly **strikes tall things**, such as trees that break down and catch fire or it may strike power transmission lines and antennas fastened on roofs and buildings which causing fire.
- The air temperature, when lightning occurs, is as hot as **9982.2 °C. Thunder** is the **sound** caused by **lightning**.
- A charged, superheated lightning bolt creates a **"resonating tube" as** it travels.
- **The air in the tube** rapidly expands and contracts causing vibrations that we hear as **the rumble of thunder**.
- Lightning strikes can explode a tree. Imagine **15 million volts** of electricity hitting a tree branch.
- The heat travels through the tree, vaporizing its sap and creating steam that causes the trunk to explode.

Lightning

Before lightning

- If you are planning to go to the countryside, **check** the **weather forecast.**
- If a thunderstorm is expected it is better to **postpone the trip**.
- It is good if you can estimate the distance to the front line of a thunderstorm.
- In order to do this you must check the time interval from the moment you see the lightning until you hear thunder.
- **Lightning** always **precedes thunder**.
- We know that the sound speed travels on average about 1km every 3 seconds.
- **Reduction of the time interval** between the sight of lightning and the resulting thunder means that the danger is approaching and protective measures must be taken.
- If there is no interval between lightning and thunder means, it means that the cloud is already over your head.

During Lightning:

- If you are in a **building** it is necessary to close windows, doors, ventilation pipes and chimneys.
- It is necessary to turn off the telephone, TV set, and other electrical equipment because lightning may strike electrical cables and pass through wiring.
- **Do not take a shower** because both water and metal conduct electricity.
- **Do not light the fireplace** because the heat coming from the chimney may attract lightning.
- It is better to **stay away** from electric wires, lightning rods, water pipes, antennas and windows.
- If you are in an open area during a thunderstorm, do not stand under a tall tree.
- Lighting is most damaging for tall trees. It is better to stay **30-40 meters** away from them.
- **Avoid trees** that are standing separately. Remember that lightning does not strike bushes.
- If the area is open, it is better to find a lower place or a cavity and squat there.
- It is dangerous to stand or lie down on the ground, because this increases the exposure area.
- It is necessary to get **rid of metal items** such as a bicycle, coins etc. Do not stand under an umbrella.
- **Do not run** during the occurrence of lightning; move slowly towards a shelter because the air flow may attract lightning;
- If you are in a **car, do not get out**. It is better to close the windows and turn of the antenna.
- **Do not park your car** under **tall trees** or any structures that may fall down and hit you.
- If there is an injured person next to you, remember that the **victim** may lose consciousness. It is necessary to **provide first aid.**
- **Cover your mouth** with a wet cloth in order to protect your lungs.

MORE TO KNOW:

Mock Drill

- Mock Drill means **Practicing** of something that can happen in future so that it can be easily dealt with in.

Lightning

- You can **hear** thunder from about **16 km** of its starting point.
- Lightning bolts **travel** at the **speed** of up to **80,000 km / second.**
- The average length of a **single lightning bolt** is **3-4km.**
- Lightning flashes more than **3 million times a day or 40 times a second worldwide**.