Chapter 14

Water

How Much Water Do We Use?

About 2/3rd of the Earth's surface is covered with water. Most of this water is in seas and oceans. A large number of salts are dissolved in sea and ocean water due to which the oceans and seawater are highly salted or saline. So, it is not fit for drinking, domestic, agricultural, and industrial needs.

♦ **Uses of Water:**

(a) Water is used for drinking, cooking cleaning, etc.

(b) It is used in agriculture for growing crops.

(c) It is used in industries for producing things.

(d) It is used to produce electricity.

Where Do We Get Water From?

♦ **River, ponds and springs:**

• Rivers, ponds, and springs get their water from melting snow on the peak of mountains called glaciers and also from rain.

• Lakes, ponds, and wells get their water from rain. Rainwater is the purest form of natural water. It is not salty.

♦ **Oceans and Sea:**

• Large amounts of salts are dissolved in sea and ocean water due to which the oceans and seawater are highly salted or saline. So, it is not fit for drinking, domestic, agricultural, and industrial needs.

• Ocean plays an important role in supplying fresh water by a natural process called the water cycle.

Water Cycle

Water exists in three states: Solid, liquid, and gas. Ice is the solid form, water is the liquid form while water vapor is the gaseous form of water.

Evaporation: The process of changing of water into water vapor on heating is called evaporation.

Example: Drying of wet clothes, drying of wet floor and drying of rooftop after rain.

Transpiration: The loss of water from the plants as water vapor through the pores of leaves (Stomata) is called transpiration

Condensation: The process of changing of water vapor into liquid on cooling is called condensation. Example: When we take out a cold water bottle from refrigerator and keep it on a table, after some time water droplet for formed outside the bottle. This is because when the water vapor present in air around the bottle comes in contact with the cold outer surface of bottle, it gets cooled and condenses to form liquid water.
The process of condensation is the reverse of evaporation

Precipitation: Water in the form of vapors goes into air by evaporation and transpiration. Water vapors their form clouds and water comes back to the ground as precipitation.

♦ Water Cycle:

Water Cycle

• The continuous circulation of water on the Earth's surface to the atmosphere, and from the atmosphere back to earth, is called the water cycle in nature.

• Water vapor is formed by the process of evaporation (from oceans, rivers, lakes, ponds, soil) and transpiration goes into the air. The air containing water vapor is heated by the sun. Hot air being lighter rises up in the sky.

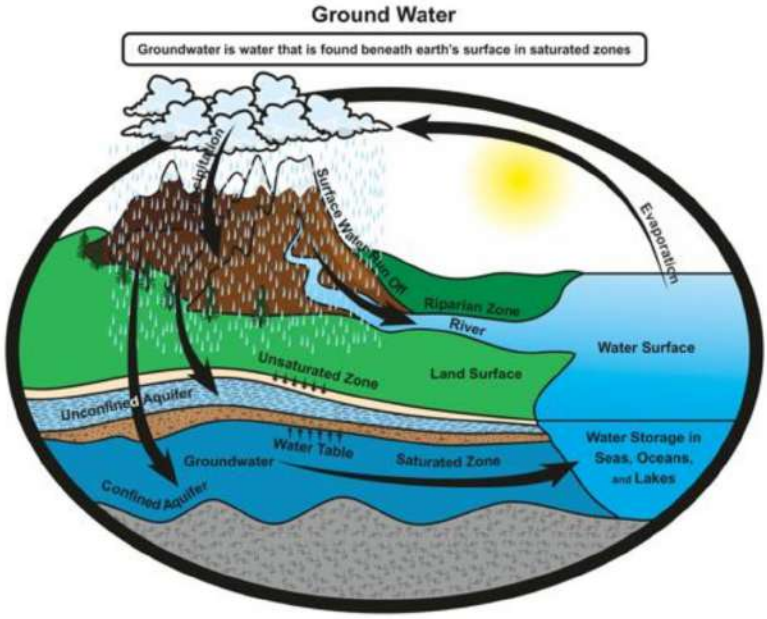
• As we go higher from the surface of the earth, it gets cooler. So, when the hot air moves up, it gets cooler and cooler. At sufficient height, the air becomes so cool that the water vapor present in it condenses to form tiny drops of water. These tiny drops of water are called droplets. These tiny droplets remain floating in the air in the sky and appear to us like clouds. Many droplets of water join together to form a bigger drop of water. Big drops become heavy and fall on earth as rain or snow.

♦ **Importance of Water Cycle:**

• It makes fresh water available in the form of rain.

• It keeps the amount of water on the Earth's surface constant.

Ground Water



• Some of the rainwater which falls on the earth's surface seeps through the soil and goes under the surface of the earth. This water is called groundwater.

• Groundwater is the source of water for many lakes. The water which we take out from hand pumps or tube wells is the groundwater.

Rain

Rain is the drops of water that fall from the sky.

♦ **Advantage of Rain:**

• It helps to cool the environment after hot summer days.

• It provides water in rivers, lakes, and ponds.

• It also helps to maintain the groundwater level.

♦ **Floods:**

When it rained heavily for a long time, it may lead to rising in the level of water in rivers. This water starts overflowing from the bank of the river and spreads over the large areas causing floods.

♦ **Drought:**

Due to lack of rain for a long period of time, the soil becomes dry and this condition is called drought. Crops do not grow well due to a lack of moisture in the soil.

Rainwater Harvesting

Conserving water means saving water. We should save water by using them carefully and wisely.

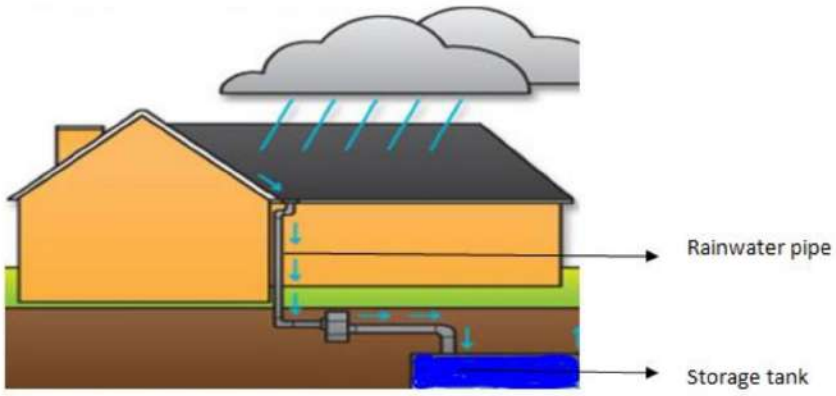
♦ **Rain Water Harvesting :**

To overcome the shortage of water, we should collect rainwater and store it for later use. Collecting rainwater is called rainwater harvesting. The basic idea behind rainwater harvesting is ''Catch water where it falls''.

Rain Water Harvesting can be done in two ways:

(a) Rooftop rainwater harvesting:

This is done by collecting rainwater falling from the roof of a house into a storage tank through pipes. This water can be used later. The other way is instead of collecting the rainwater into a storage tank, the pipes can go directly into a pit in the ground. The water seeps into the soil and recharges the groundwater.



Rooftop rainwater harvesting

(b) Rainwater harvesting from open spaces around buildings:

In this method, water is allowed to go into the ground directly from the roadside drains that collect rainwater.

*Infiltration: Rainwater seeps through the soil and goes under the ground, this is known as infiltration. This is the source of groundwater.