

Chapter 16

Water: A Precious Resource

How much water is available?

- About 71% of Earth's surface is covered with water.
- About 70% of water is present in the human body.
- About 0.006% of the total water present on the earth is available for use.
- Almost all water on the Earth is contained in the seas and oceans, rivers, lakes, ice caps, groundwater, and in the atmosphere.
- However, most of this water is not fit for human consumption. The water that is fit for use is freshwater.

Forms of Water



Water exists on Earth in three forms:

◆ Solid form:

Snow and ice are solid forms of water present as ice caps at the poles of Earth, snow-covered mountains, and glaciers.

◆ Liquid form:

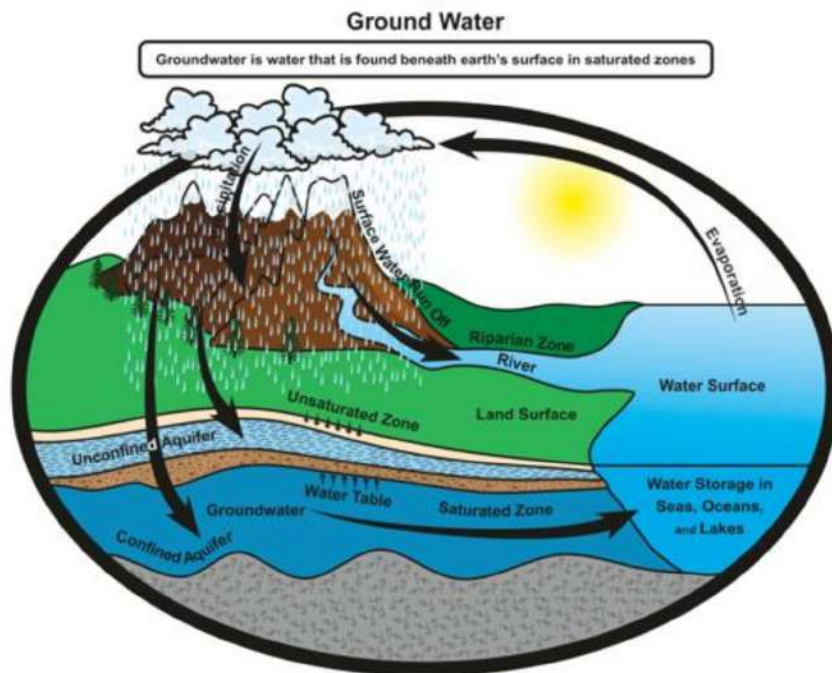
Liquid water is present in oceans, lakes, rivers, and underground.

◆ Gaseous form:

Water vapour is the gaseous form of water present in the air around us.

Groundwater as an Important Source of Water

The upper level of groundwater below the surface of the earth is called the water table and the water found below the water table is called groundwater. The main source of groundwater is rain. Some other sources such as rivers, lakes, and ponds, seep through the ground and fill the empty spaces between the soil and the rocks below the Earth. Groundwater is obtained for use with the help of wells, tube wells, and handpumps.



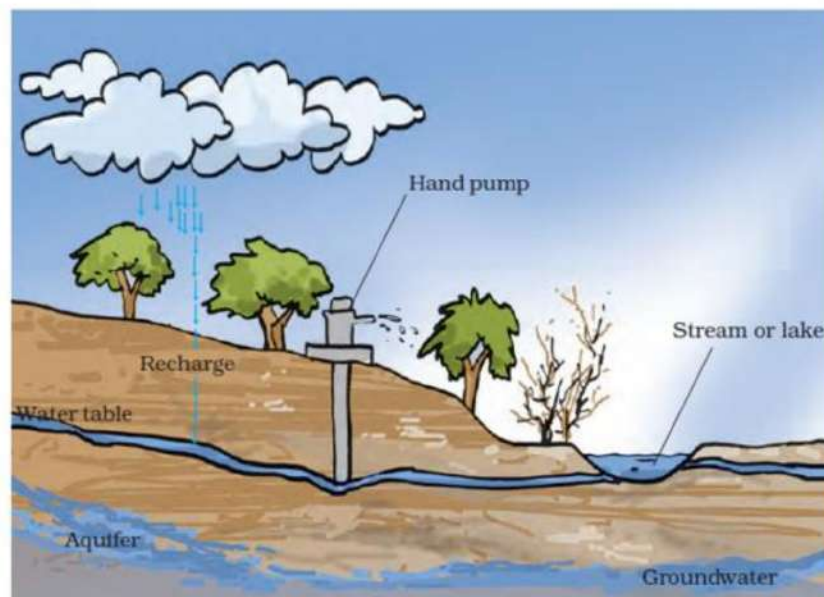
Aquifer:

The groundwater is stored between layers of hard rock below the water table. This is called an aquifer. The top of the aquifer is referred to as water.

Infiltration:

The process of seeping water into the ground is called infiltration. We draw groundwater for use with the help of tube wells and hand pumps and this decreases the amount of groundwater. When it rains, the rainwater seeps into the ground and the groundwater is recharged. Thus, groundwater gets recharged by the infiltration process.

Water Cycle



Pic credit: NCERT

- Water constantly moves from the Earth to the atmosphere and comes back to the earth again. This constant circulation of water in nature is known as the water cycle.
- In the water cycle, water in seas, rivers, lakes, ponds or streams is evaporated and water vapor rises up (evaporation). The air higher up in the atmosphere is cooler.
- This cools the water vapor and it condenses to form tiny drops of water (condensation).
- These drops of water unite together and form clouds (cloud formation). As the clouds get cooled further, more water drops unite together and become bigger.
- When they become too heavy, they fall on the Earth as rain (precipitation).

Depletion of Water Table

We draw groundwater for our use and it is replenished by natural processes like seepage and infiltration of rain water.

If the groundwater drawn by us is not replenished sufficiently then the water table goes down result in the depletion of water.

Factors that affect depletion of the water table are:

- Increasing Population
- Increasing Industries
- Agricultural activities
- Scanty rainfall
- Deforestation

Water Management

The best way to overcome a shortage of water is by the proper management of water.

◆ Rainwater harvesting – The rainwater can be used to recharge the groundwater. This is referred to as rainwater harvesting. This is done by constructing percolation pits and recharge wells on the ground to make rainwater seep into the ground more efficiently.

◆ Revival of Bawris – Bawris are the traditional way of collecting water. Bawris is a step-well. With time the bawris fell into disuse and garbage started piling in them. Because of the acute shortage of water in some places, people are renovating and reviving bawris.

◆ Drip Irrigation – Due to shortage of water farmers are using water more economically by the technique called drip irrigation. Drip irrigation is a technique of watering plants by making use of narrow tubes or pipes with small holes which deliver water directly at the base of the plant.

*Tip: Grass lawn will allow water to seep in easily. The Pucca floor inhibits the seepage of rainwater into the ground. The Pucca floor does not allow water to seep into the ground easily, whereas, on a playground, grass lawn, and forest land, water seeps through easily.