

The Water Planet

Water cycle

Flood

Drought

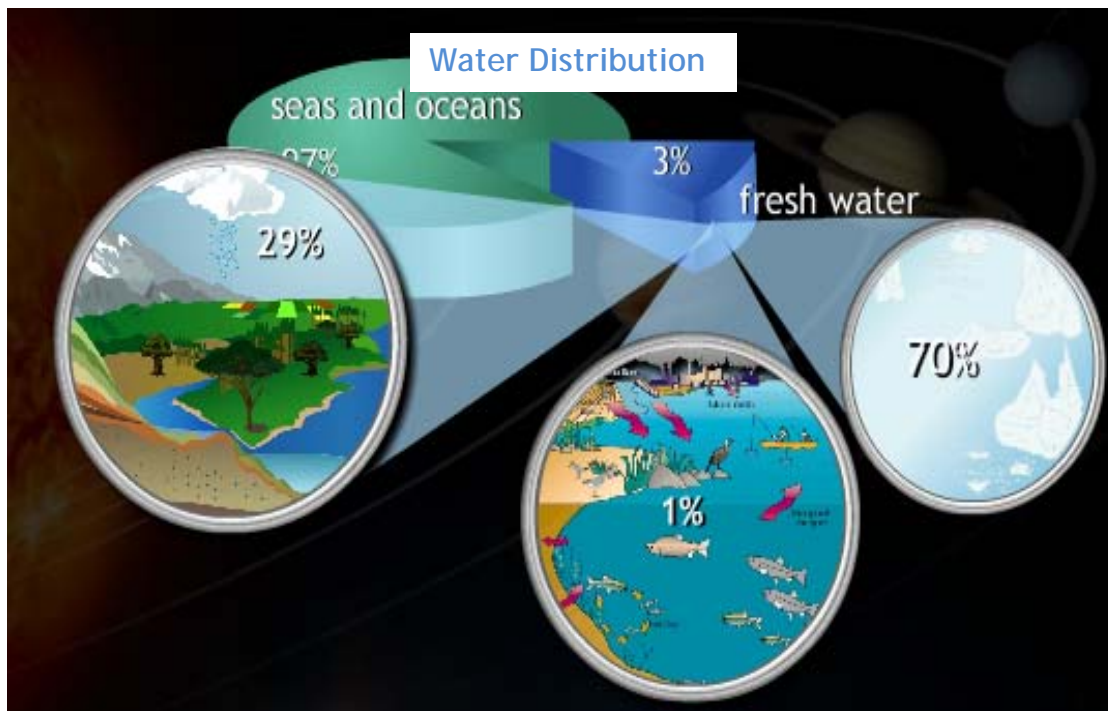
Rain Harvesting

The Water Planet

Water is an important resource that is required by all living organism. It is needed for various purposes like drinking, cleaning, irrigating fields, manufacturing products in industries and many others.

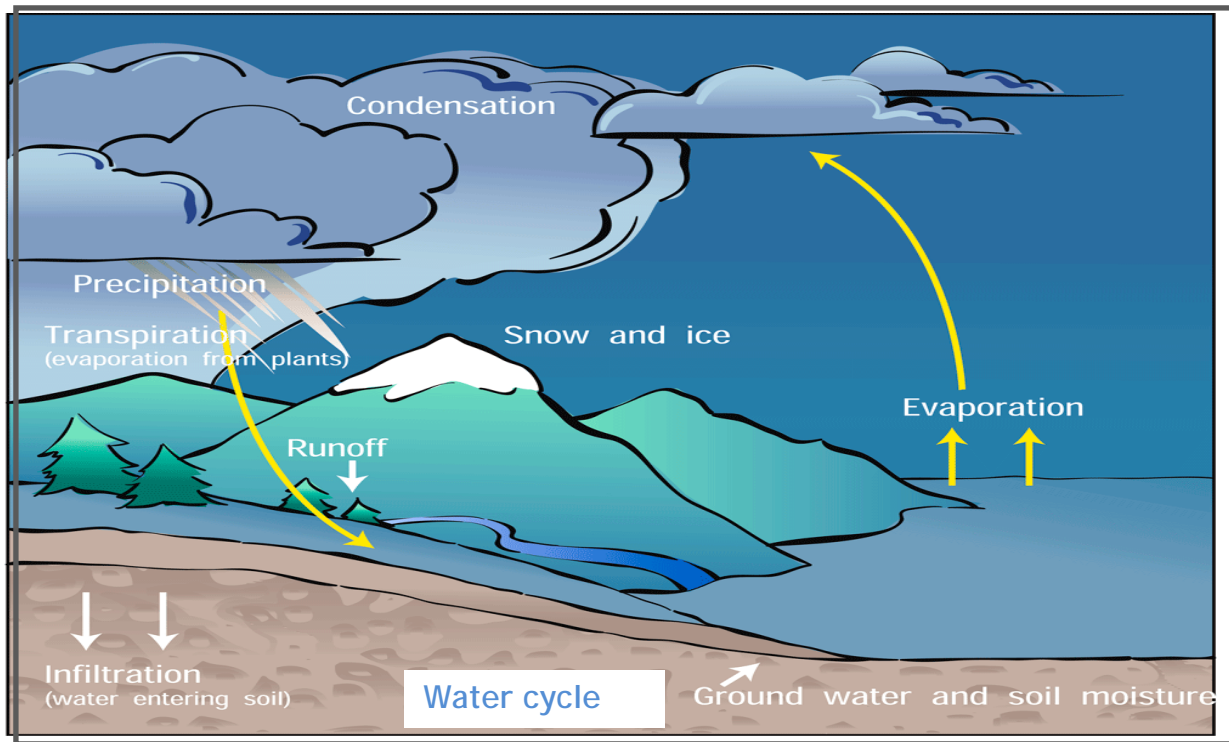
Source of water

Three fourths of the earth's surface is covered with water but only a little amount of that water is in usable form. The water in oceans is salty and is therefore unfit for drinking and other uses. Some water is trapped in the form of snow and glaciers in the polar region. The ponds, lakes, wells are the source of fresh water that is potable. Although we don't use ocean water it plays a substantial role in the water cycle.



Water cycle

The amount of water present on earth circulates from one form to another. The circulation of water between ocean and land is known as the water cycle.



This cycle is made up of a few main parts:

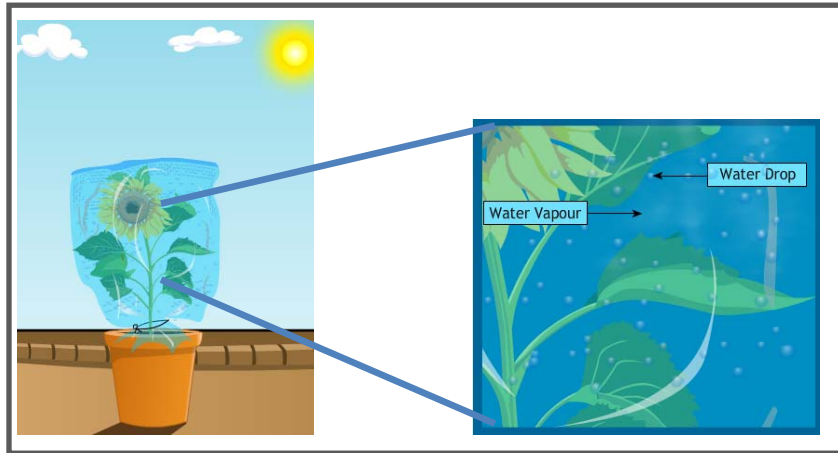
- ❖ Evaporation (and Transpiration)
- ❖ Condensation
- ❖ Precipitation
- ❖ Collection

Evaporation

Evaporation is when the sun heats up water in rivers or lakes or the ocean and turns it into vapor or steam. The water vapor or steam leaves the river, lake or ocean and goes into the air. Plants also lose water in the form of water vapour from the leaves by the process of transpiration.

Activity

Take a potted plant and cover it with a polythene bag. Keep it in sun for some time. After 4-5 hours you will observe water droplets collected on the inner portion of the polythene bag.



Transpiration

Condensation

Water vapour on reaching higher altitudes condenses to form water droplets which float in air. These are the clouds. This conversion of water vapour into water is called as condensation.

Precipitation

Precipitation occurs when so much water has condensed that the air cannot hold it anymore. The clouds get heavy and water falls back to the earth in the form of rain, hail, sleet or snow.

Collection

When water falls back to earth as precipitation, it may fall back in the oceans, lakes or rivers or it may end up on land. When it ends up on land, it will either soak into the earth or it may run over the soil and collect in the oceans, lakes or rivers where the cycle starts again.

Ground water

The water that falls on the earth surface through rains seeps into the surface and becomes ground water. This groundwater is also the source of lakes. The water obtained from tube wells and hand pumps is nothing but the ground water. Urbanization has made the land surface concrete due to which rain water cannot be absorbed. Increasing use of this ground water has led reduction in the level of water table and ultimately groundwater depletion.

Flood

Heavy rain can cause floods. If a lot of rain falls quickly, the earth is unable to soak it up, and the water builds up on the ground. When it runs off into the rivers, the rivers overflow their banks. The worst floods happen where the land is flat and low-lying. These areas are known as floodplains. Mud, earth, and large objects, like cars, can be carried long distances by flood waters. They rip up anything not firmly anchored to the ground. Then, disease spreads quickly because the flood water is polluted and there is no fresh drinking water.



Effects of floods

Causes damage to the animals as they get carried away with water.
Crop fields is destroyed.
Damage is caused to life and property.

Drought

Drought is a temporary reduction in water or moisture availability significantly below the normal or expected amount for a specific period. This condition occurs either due to inadequacy of rainfall, or lack of irrigation facilities. If drought persists for a longer period it may lead to famine.



Droughts

Consequences of drought

- ❖ Death of livestock
- ❖ Reduced crop yields
- ❖ Malnutrition, dehydration and related diseases
- ❖ Famine due to lack of water for irrigation
- ❖ Desertification

Conservation of water

The water in oceans cannot be used while the groundwater is depleting day by day therefore to meet the demands of the increasing population measures should be taken to conserve this water. This can be done by stopping wastage of water and use it judiciously.

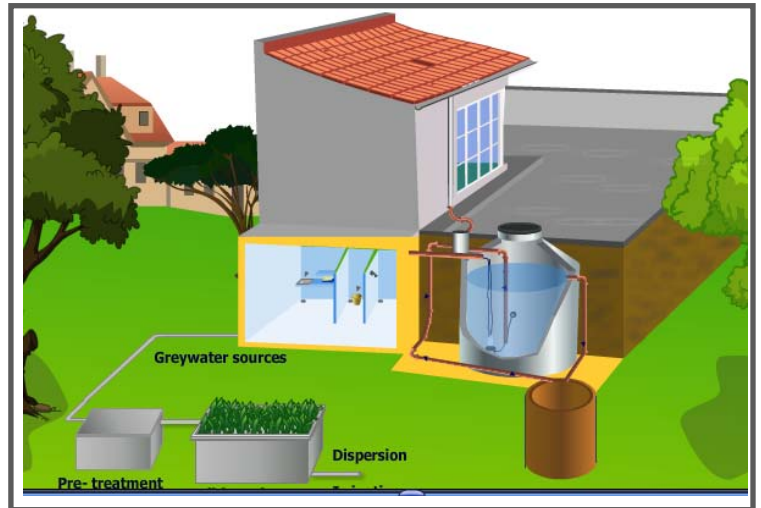
Rain water Harvesting

One way of increasing the availability of water is to collect rainwater and store it for later use. Collecting water in this way is called Rainwater Harvesting.

This can be done by two ways

1. Rooftop rainwater harvesting
2. Direct collection of rainwater into drains which gets absorbed into the ground.

In rooftop rain water harvesting the water from the rooftops is collected into a tank which after filtration to remove the impurities becomes fit for use or goes into pits from which it seeps into the ground. The water collected is then made available for use.



Rainwater Harvesting

Another method of harvesting water is to allow the rainwater to directly make it absorbed in the ground through the roadside drains.