

Water Conservation

The original source of water is precipitation from the atmosphere. The water available on the earth may occur in all three stages as gas, liquid or solid. Temperature is the main factor in deciding the state of water. As a liquid, the water forms hydrosphere. About 75% of the Earth's surface is covered by the hydrosphere.

The process of saving water for future utilization is called conservation of water.

Need for water conservation.

1. Better life style requires more fresh water.
2. Agriculture and Industrial activities require more fresh water.
3. As the population increases the requirement of water is also more .

Strategies of water conservation

Reducing evaporation losses

Evaporation of water in humid regions can be reduced by placing horizontal Barriers of asphalt below the soil surface.

Reducing irrigation losses

Sprinkling and irrigation conserves water by 30- 40%. Irrigation in early morning (or) later evening reduces evaporation losses.

Growing hybrid crop varieties also conserve water.

Reuse of water

Treated waste water can be reused for irrigation. Water from washings, bath rooms etc. can be used for washing cars, gardening.

Preventing of wastage of water

Closing the taps when not in use and repairing any leakage from pipes .

Decreasing run off losses

Run off , on most of the soils can be reduced by using contour cultivation (or) Terrace farming.

Avoid discharge of sewage

disposal into natural water resources should be avoided

Methods of water conservation

Rain water Harvesting and Watershed management

What is Water Harvesting

It means capturing rain where it falls or capturing the run off in your own village or town. And taking measures to keep that water clean by not allowing polluting activities to take place in the catchment.

Therefore, water harvesting can be undertaken through a variety of ways

- Capturing runoff from rooftops
- Capturing runoff from local catchments
- Capturing seasonal floodwaters from local streams
- Conserving water through watershed management

These techniques can serve the following the following purposes:

- Provide drinking water
- Provide irrigation water
- Increase groundwater recharge
- Reduce stormwater discharges, urban floods and overloading of sewage treatment plants
- Reduce seawater ingress in coastal areas.

In general, water harvesting is the activity of direct collection of rainwater. The rainwater collected can be stored for direct use or can be recharged into the groundwater. Rain is the first form of water that we know in the hydrological cycle, hence is a primary source of water for us. Rivers, lakes and groundwater are all secondary sources of water. In present times, we depend entirely on such secondary sources of water. In the process, it is forgotten that rain is the ultimate source that feeds all these secondary sources and remain ignorant of its value. Water harvesting means to understand the value of rain, and to make optimum use of the rainwater at the place where it falls.

Rainwater harvesting . It is a technique of collecting and storing rain water for use in non-monsoon periods. In the present age, concrete houses, well-built roads, footpaths and well –concreted courtyards have left few open grounds. With the decrease in natural forest cover, increase in concrete

jungles and the decrease in exposed earth; very little open ground is left for water to soak in and thereby increase the ground water table. So, artificial recharging of the ground water is extremely essential. It is done through rain water harvesting. For the purpose, rain water is collected at the roof top or in an open well and then carried down for immediate use or it is directed into the aquifer.

Rain water harvesting techniques

There are two main techniques for rain water harvesting:

1. Storage of rain water on the surface for future use
2. Recharge of ground water

Recharge of ground water is a recent concept and the structures used for the purpose are:

- Pits
- Trenches
- Dug wells
- Hand pumps
- Recharge shaft
- Lateral shafts with bore wells
- Spreading technique

Objectives of rain water harvesting.

- To raise the water table by recharging the ground water.
- To minimize water crises and water conflicts
- To reduce rain water run off and soil erosion.
- To reduce the ground water contamination from intrusion of saline water

Concept of rain water harvesting

Rain water harvesting involves collecting water that falls on roof of house during

Rain and conveying water through pvc or Al pipe to a near by covered storage tank.

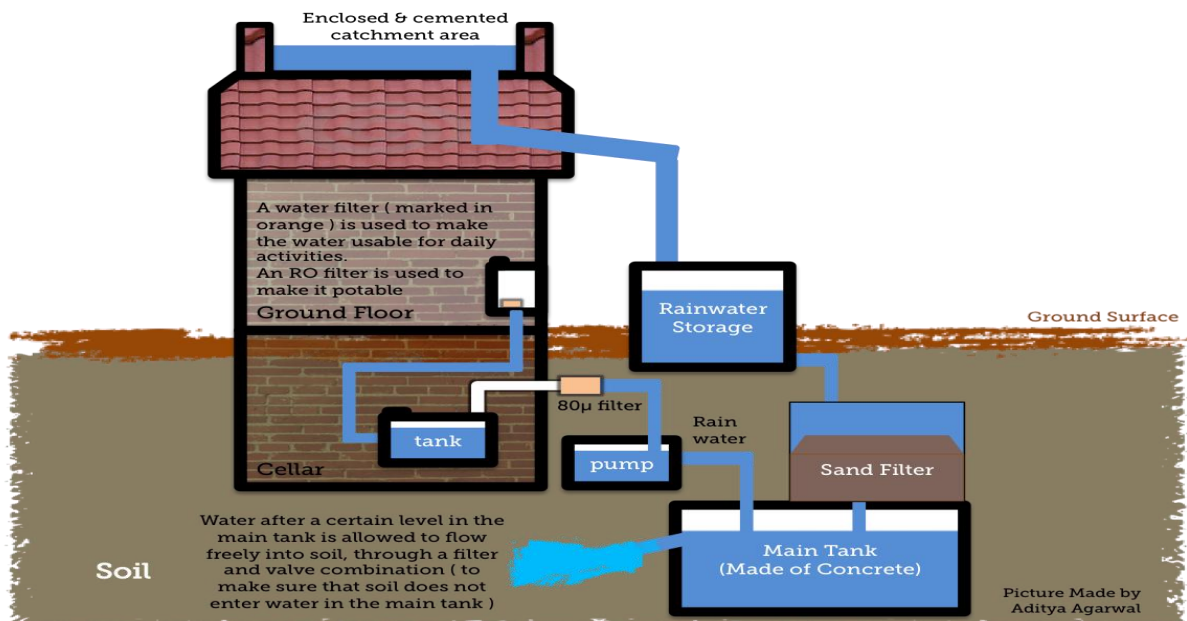
Method of rain water harvesting

1. Roof top method: collecting rain water from roof of the building and storing in the ground. It is the low cost and effective technique for urban houses and buildings.
2. The rain water from roofs, road surfaces, play grounds is diverted into the surface tank or recharge pits. The pit base is filled with stones and sand which serves as a
3. Sand filter.

Advantages:

- Rise in ground water level.
- Minimising the soil erosion and flood Hazards.
- Scarcity of water is reduced

Rainwater harvesting systems channel rainwater that falls on to a roof into storage via a system of gutters and pipes. The first flush of rainwater after a dry season should be allowed to run to waste as it will be contaminated with dust, bird droppings etc. Roof gutters should have sufficient incline to avoid standing water. They must be strong enough, and large enough to carry peak flows. Storage tanks should be covered to prevent mosquito breeding and to reduce evaporation losses, contamination and algal growth. Rainwater harvesting systems require regular maintenance and cleaning to keep the system hygienic.



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