

Rainwater Harvesting-I

Rainwater harvesting

Rainwater harvesting is the process or technology of conserving rainwater by collecting, storing, conveying and purifying of rainwater running off from rooftops, parks, roads, open grounds, etc. for later use. There are many methods of rainwater harvesting.

Methods of Rainwater Harvesting

1. Surface Runoff Harvesting

In urban areas, rainwater flows away as surface runoff. This runoff can be collected and used for recharging aquifers by appropriate methods.

2. Rooftop Rainwater Harvesting

It is a system of collecting rainwater at the site of falling. In this system, the roof becomes the catchment area, and the rainwater is collected from the roof of the house or building. The run off can either be stored in a tank or diverted to an artificial recharge system. It is less expensive and very useful in augmenting the groundwater level of a particular area.

Components of the Rooftop Rainwater Harvesting

The system mainly constitutes of following sub-components:

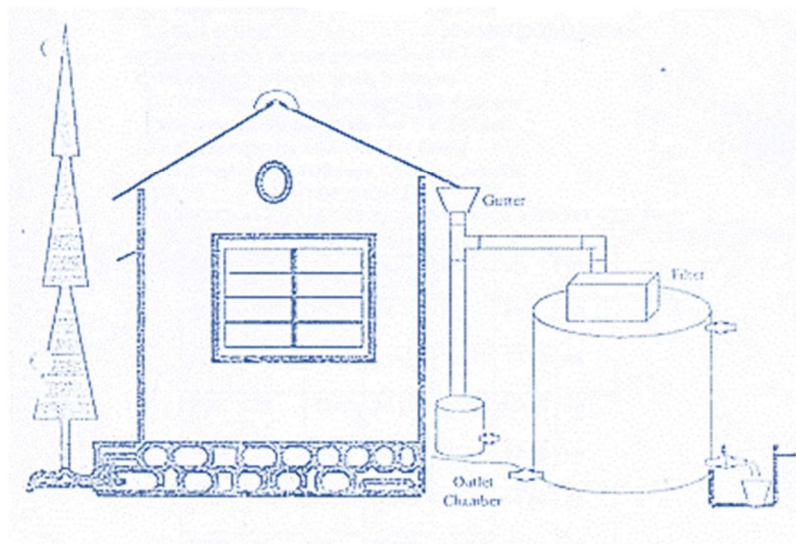


Fig: Components of Rainwater Harvesting

1. Catchment:

It is the surface that receives rainfall directly. It may be a terrace, courtyard, or paved or unpaved open ground. It is the area, which actually contributes rainwater to the harvesting system.

2. Transportation:

Rainwater from the rooftop is carried down to take water pipes or drains to the storage or harvesting system. Water pipes should be UV resistant (ISI HDPE/PVC pipes) of the required capacity. Water from sloping roofs is caught through gutters and down take the pipe. At terraces, the mouth of each drain should have wire mesh to restrict floating material.

3. First Flush:

It is a device used to flush off the water which is received in the first shower. The first shower of rains is flushed-off to avoid contaminating storable or rechargeable water by the probable contaminants of the atmosphere and the catchment roof. It helps in cleaning of silt and other material deposited on the roof during dry seasons. Provisions of first rain separators should be made at the outlet of each drainpipe.

4. Filter

Filters are used for the treatment of water to remove turbidity, color, and microorganisms. After the first flushing of rainfall, water should pass through filters. A gravel, sand, and 'netlon' mesh filter is designed and placed on top of the storage tank. This filter is very important in keeping the rainwater in the storage tank clean. It removes silt, dust, leaves, and other organic matter from entering the storage tank. The filter media should be cleaned daily after every rainfall event. Clogged filters prevent rainwater from

easily entering the storage tank and the filter may overflow. The sand or gravel media should be taken out and washed before it is replaced in the filter.

