Laxmi Narain Dubey College, Motihari
(a constituent unit of B.R.A. Bihar University, Muz.)
NAAC Accredited 'B+'
National Cadet Corps (NCC)

Topic: Rain Water Harvesting

NCC - Common Subject
B/C Certificate Examination

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Introduction.

1. Rainwater harvesting means capturing the runoff of the rainwater in our own house, village, town or city.
2. It basically means accumulation and storage of rainwater for reuse, before it reaches the aquifer.
3. Utilisation includes water for garden, livestock, irrigation etc.
4. The harvested water can be used for drinking water also, if the storage is a tank that can be accessed and cleaned when needed.

Need for Rainwater Harvesting.

5. India is in a state of water crisis. Floods and droughts go hand in hand in our country which causes water crisis. Rainwater is a pure form of water if stored locally and can greatly reduce the pressures on treated water supply. Rainwater harvesting is therefore extremely essential for the following reasons:-
   (a) It helps to recharge sub soil and groundwater thus increasing the level of the water table.
   (b) It helps to create large quantity of pollution free potable water that can be stored in huge tanks or ponds for use later on. In cities, it reduces the

dependence on treated water supply to a great extent.

(c) It ensures ready supply of water on the land surface thereby reducing dependence on the ground water.

Types of Rainwater Harvesting Systems.

6. There are a number of ways to harvest rainwater. Generally, rainwater is either harvested from the ground or from a roof.

(a) Ground Catchment systems. This method is ideally suited for villages in rural India. This method is more suitable for small communities than individual families. Generally, this method is only considered in areas, where rainwater is very scarce and other sources of water are not available. In this method water is channelise from a prepared catchment area into a storage system. If properly designed, ground catchment can collect large quantities of rainwater.

(b) Roof Catchment Systems. This system channelise rainwater that falls onto a roof, into a storage tank via system of 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. Rainwater from the subsequent showers can be

harvested. Roofs and pipes should have sufficient incline to avoid standing water. They must be strong enough and large enough to carry peak flows. Storage tank should be covered to prevent mosquito breeding and to reduce evaporation losses, contamination and algae growth. This system regular maintenance and cleaning, to keep the system hygienic and in good working order. This method is most suited for towns and cities.

(c) Subsurface Dyke. A subsurface dyke is built in an aquifer to obstruct the natural flow of ground water, thereby raising the groundwater level and increasing the amount of water stored in the aquifer. Example, the subsurface dyke at Krishi Vigyan Kendra, Kannur under Kerala Agricultural University with the support of ICAR. The dyke is now the largest rainwater harvesting system in that region.

Groundwater Recharge.

To Rainwater may also be used to recharge groundwater where the runoff on the ground is collected and allowed to be absorbed, adding to the groundwater. In India this includes bunds which collect the run-off from small streams in a wide area. In India, reservoirs called tankas were used to store water; typically they were shallow with mud walls.

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Advantages in Urban Areas :-

8. Some of the reasons why rainwater harvesting can be adopted in cities, is to provide supplemental water for the city's requirements, to increase soil moisture levels for urban greenery, to increase the ground water table through artificial recharge, to mitigate urban flooding and to improve the quality of groundwater. In urban areas, at a household level, harvested rainwater can be used for flushing toilets, washing laundry, showering or bathing. It may however require some treatment before it can be used for drinking.

Conclusion :-

1. Water is the only resource for which there is no alternative.
2. Inefficient management of this important natural resource has caused a situation of crisis in many parts of the world, including India.
3. Therefore, it is very important that we conserve water.