

RAINWATER HARVESTING

Introduction

Rainwater harvesting is an important environment friendly approach. It is a Green Practice having double benefit of keeping the groundwater level undisturbed and charging the aquifer. Rainwater and run-off water, stored in a planned way, can save the earth from soil erosion and flood and recharge the aquifers to increase the groundwater level. The extensive and unplanned use of groundwater has not only disturbed the natural water level but also has made the groundwater contaminated and unfit for use. Collecting and harvesting rainwater and run-off water would reserve the water for future generation. Rainwater harvesting is eco-friendly and economical. The cost of digging a catchment area can be saved by roof-top collection of rainwater. The catchments and settlement tanks reduce the ground heat and act as a natural cooler. The best part of the practice of rainwater harvesting, is that if unused, this water can be collected in natural ponds or artificial tanks and decanted to the ground thus charging the a aquifer.

Objectives

To increase recharge of groundwater by capturing and storing rainwater,by rainwater harvesting from rooftop run-offs.

Store the rain water for gardening & washing purpose.

Rainwater harvesting is one of the best method fulfilling those requirements as it increases the ground water level. The technical aspect of this report is harvesting of rainwater which is collected from rooftop which is considered to be catchment areas from all institutional buildings at S.V.ARTS College TIRUPATI campus and using it for ground water recharging.

The institute area is surrounded by the residential areas. Residential accommodation is provided to students. There are 23 departments and three boys hostels for the residence .Hence, total strength of campus including students and staffs people will be more than 3,000 and its still under the expansion project adding more number of

students and faculty person and increasing facilities by enhancing infrastructures. Four Rainwater harvesting pits and ground water recharging system is constructed in S.V.ARTS COLLEGE campus of TTDS, Tirupati. Among four pits two pits are constructed in front of the main building and the other two pits are constructed at western side of Electronics department.

RAINWATER HARVESTING SYSTEMS AND ITS FEATURES

Rainwater Harvesting is a simple technique of catching and holding rainwater where it falls. Either, we can store it in tanks or we can use it to recharge groundwater depending upon the situation and requirement. Ease in constructing system in less time.

Economically cheaper in construction compared to other sources, i.e. dams, diversion, etc. Rainwater harvesting is the ideal situation for those areas where there is inadequate groundwater supply or surface resources.

Helps in utilizing the primary source of water and prevent the runoff from going into sewer or storm drains, thereby reducing the load on treatment plants.

COMPONENTS OF RAINWATER HARVESTING SYSTEM

A rainwater harvesting system comprises of components for – transporting rainwater through pipes or drains, filtration, and tanks for storage of harvested water. The common components of a rainwater harvesting system are:-

Catchments: The surface which directly receives the rainfall and provides water to the system is called catchment area. It can be a paved area like a terrace or courtyard of a building, or an unpaved area like a lawn or open ground. A roof made of reinforced cement concrete (RCC), galvanized iron or corrugated sheets can also be used for water harvesting.

Coarse Mesh: It prevents the passage of debris, provided in the roof

Context of rainwater harvesting

- The soil in the college campus has a good infiltration rate.
- For the gardening purpose, water is required daily.
- This requirement is satisfied by the water stored by rainwater harvesting.

Rain water flow from roof to garden through roof water collecting pipes



Roof water flow from terrace to harvesting pits through roof water collecting pipes



Roof water flow from terrace to harvesting pits through roof water collecting pipes



Rain water Harvesting pits in S.V arts college, campus



Rain water harvesting pit opposite to sports complex



Rain water harvesting pit opposite to sports complex



Rain water harvesting pit in front of the sports complex



Rain water harvesting pit at western side of Electronics Dept



Rain water harvesting pit at western side of Electronics Dept

