

# Rain Water Harvesting

Dattatree Markad<sup>1</sup>, Sandip Shingate<sup>2</sup>, Vishal Kokate<sup>3</sup>, Atish Agale<sup>4</sup>, Dr.Pallavi Kharat<sup>5</sup>

<sup>1, 2, 3, 4, 5</sup> Dept of Civil Engineering

<sup>1, 2, 3, 4, 5</sup> Dr.D.Y.Patil School Of Engineering And Technology, Lohegaon, Pune.

**Abstract-** Water scarcity is serious problem throughout the world for both urban & rural community. By using rainwater harvested from urban catchments for a variety of non-potable water uses, the quantity of water extracted from source water watersheds can be reduced, with potential ecological, economic and even social benefits. The aim of the present study is to use rainwater and thus taking close to the concept of nature conservation. In this study, the rain water harvesting (RWH) system is analyzed as a alternative source of water at campus of Dr. D.Y.Patil School of Engineering Lohegaon Pune in the state of Maharashtra, India.

**Keywords-** Storage Tank, Potable water tank, Water Conservation

## I. INTRODUCTION

Water is one of the most important resources for the survival of human beings as much as food, air, etc are. But very little attention is given to its economical use and conservation of this precious resource. Due to the over-pumping of groundwater, the water table is going down abnormally and if the problem is not given a serious look, then the future generations may have to face severe scarcity of water. Rainfall is the prime source of water and if the rainwater is harvested, the scarcity of water can be eliminated altogether. This is an ideal solution to overcome water problems where surface water sources are insufficient and inadequate groundwater supply quantitatively and qualitatively. Rainwater harvesting is the technique through which rainwater is captured from the roof catchments and stored in reservoirs. Rooftop rainwater harvesting is essential for making water available for future use. This method is particularly important in drought-prone, hilly, urban, and coastal areas.

Harvesting is a simple technique of catching and holding rainwater where we can store it in tanks or we can use it to recharge groundwater depending upon the General Description. Rain water harvesting is a technology used for collecting and storing rainwater from rooftops, the land surface or rock catchments using simple techniques such as jars and pots as well as more complex techniques such as underground check dams.

## II. IDENTIFY, RESEARCH AND COLLECT IDEA

### Literature Review

Pandurang D.Jankar, Maheshkumar M. Bhanuse:

**(Case Study I)** Madgyal is small village located at distance of 25km from jath city, district –sangali, state Maharashtra, the project will verify the extent to which adoption of the adapted technologies could help greatly in conserving water resources in the semi-arid regions in developing countries and he same time helping by improving the quality life of human. The main of this paper is to make efficient use of rainwater and adoption nearly launched concept of nature conversion. system is actually built in saswad city Maharashtra project cost is 48060 and it can harvest 129700lit.of water

P.Sai Rukesh Reddy and A.K.Rastogi :

**(CaseStudyII)**in their paper entitled, „Rainwater Harvesting in hostel 12 and hostel 13 of IIT Bombay“, The Indians society for Hydraulics and Journal of Hydraulic Engineering(2008). In this paper, rainwater is being conserved/harvested only for two hostel areas. And they used two methods of distribution of harvested rainwater (Rapid depletion method & Rationing method). Finally, the cost for construction of tank was calculated. Punmia B.C., Jain Ashok, & Jain Arun Kumar, was referred. These books has carried out complete costing and estimation of sump and complete structural analysis of underground sump. So these two paper was being referred while doing complete structural analysis and calculating the complete cost of

## III. CONCLUSION

Present study shows that the quantity of water available depends on the intensity of rainfall and the surface of the roof, and additional sources of water are always needed. For long periods of drought, it is necessary to store excessively large volumes of water. In areas with significant variations in the annual rainfall pattern, the matching of water supply and water demand may be difficult. However, the institution has a crucial role to play. Rainwater in many cases is the easiest way to access, most reliable, and least polluted source, especially in drought-prone areas or where the groundwater is saline. Rooftop rainwater harvesting is the only

sustainable alternative for ensuring continued access to safe drinking water. Thus, the Rooftop rainwater harvesting would be a solution for drinking and domestic water sustainability of the college to some extent. Results obtained from the present study suggested that the Rooftop rainwater harvesting method is more applicable in the college campus which is located in drought-prone zones of Maharashtra that would enable to solve the problem of water scarcity to a certain extent.

#### IV. OBJECTIVES OF PROPOSED WORKARE

- To study the rainwater harvesting potential of ADYPU campus.
- To understand the participatory approach of collective action of people in rooftop rainwater harvesting.
- To conserve, preserve and use rainwater.
- To identify suitable design for harvesting system.
- To use most efficient and effective rooftop rainwater harvesting system at ADYPU campus.
- To raise the underground water table by recharging to the collected rooftop water.
- To study the filter unit.
- To augment ground water table and arrest ground water decline.
- To beneficiate water quality in the aquifers.

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