

## RAIN WATER HARVESTING SYSTEM

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**Abstract** – Over the years of the rising population practices that increase demand of water supply have growing industries and the expansion of agricultural. Monsoon is still the main hope and the source of our agriculture. Therefore, the water saving became need time. Rainwater harvesting is a way to capture rain water at the time of the downpour, store the water above the ground or download the underground water and use later. As the groundwater resources are depleting, is the only way the rainwater harvesting to solve the water problem. Rainwater will be useful not only, the demand of water supply, but also help to improve the quantity and quality of water. Here, our focus is a tank for storing rain water from the roof of the building, that requirement for VNIET fair fashion need for water in this paper.

**Key words:** Demand, groundwater, monsoon, population, water harvesting, water, etc.

### 1. INTRODUCTION:

We all take water for granted keep. It belongs to the natural resources, not much put most people in thought, but continues to enjoy that free delivery of water for many more years, changes must be made. Rainwater harvesting is the process of collection of rainwater from land to the rain falling, filters and save it be used for multiple purposes. With water, rainwater harvesting provides the

supply back to normal levels. It is the collection and storage of water from the surfaces, that is like rain.

### 1.1 History:

Earlier: In the third century BC, the peasant communities in Balochistan (now located in Pakistan, Afghanistan and Iran) and Kutch, India, used to harvest rain water for irrigation. In ancient Tamil Nadu (India) was made the rainwater harvesting by Chola Kings. Rain water from the Brihadeeswara Temple (located in the Balaganpathy Nagar, Thanjavur, India) tank was collected in Shivaganga. The Virānam was built during the later Chola period tank Cuddalore district Of Tamil Nadu, drinking water and irrigation purposes to save (1011 to 1037 CE). Virānam is a 16 km (9.9 mi) long tank with a storage capacity of 1,465,000,000 cubic feet (41,500,000 m<sup>3</sup>).



Fig-1: Rainwater storage reservoir at Dholavira (Rann of Kutch) – Harappan civilization (2500-1900 BC)

Rainwater was collected in the Indian States of Madhya Pradesh, Maharashtra wechhatisgarh in olden days. It has ratanbor, in the State of Chhattisgarh, in about 150 ponds. Most tanks or ponds used in agriculture.

## 1.2 Present day:

- Currently is in China and Brazil on the roof rainwater harvesting is practiced for providing drinking water, domestic water, water for livestock, for small irrigation and a way to the groundwater to replenish water levels. Running the largest rooftop rainwater harvesting projects Gansu province in China and semi-arid North East Brazil.
- In Bermuda, the law all sufficiently included requires new construction use of rain water for the residents.
- In Senegal and Guinea-Bissau Diola people's houses have rainwater harvesters made from local, organic materials often homebrew manufactured.
- In the Irrawaddy Delta Myanmar saline groundwater and communities on mud-lined rain water ponds for their drinking water needs during the dry season. Some of these ponds are centuries old and treated with great reverence and respect are.
- In the United States: until 2009 in Colorado, water rights laws almost completely restricted rainwater harvesting; Owner, rain water was captured as it be stolen which are allowed to take water from the watershed. Can now also owns residential, a permit to install a rooftop rain collection system (SB 09-080) meet the specific criteria.

There is rain water reservoir for new apartments in Santa Fe in New Mexico. Texas offers a sales tax exemption

expertly with the purchase of equipment for the rainwater. Texas and Ohio allow the practice for drinking water purposes. Oklahoma passed the water for 2060 techniques in the year 2012, to support pilot projects for stormwater Andgraywater consumption among other things water-saving Act.

- In Beijing, some housing companies are now, add rain water in its main water sources after proper treatment.
- Ireland Professor MichealMcginley founded a project to design a rain water harvesting prototype in the organic system design challenge module at the University College Dublin.

## 2. RAINWATER HARVESTINS METHOD:

It is easy to collect rain water from the building, roofs and numerous other sources. As long as you are ready and you have everything with a few different items, what it needs, harvest rain water and enjoy naturally delicious, clean and useful water start. Rainwater harvesting systems can be purchased from various home improvement stores completely. The cost of these systems are different. Broadly there are two ways of harvesting rainwater.

- (i) Surface runoff harvesting
- (ii) Roof top rainwater harvesting

This section describe methods of obtaining of rainwater:

### 2.1. Surface runoff harvesting:

In urban area rainwater flows away as surface runoff. This runoff could be caught and used for recharging aquifers by adopting appropriate methods.



Fig- 2: surface runoff harvesting.

## 2.2. Roof Top rainwater harvesting:

It is the system collect rainwater, where it is harvest falls. In on the roof is the catchment area and collected rainwater, from roof/ building. It can either be stored in a tank or diverted to artificial recharge system. This method is less expensive and very effective and if implemented properly helps in augmenting the ground water level of the area.



Fig- 3: Roof top rainwater harvesting.

### 2.2.1 Components of the roof top rainwater harvesting:

The illustrative design of the basic components of roof top rainwater harvesting system is given in the typical schematic diagram shown in Fig 4.

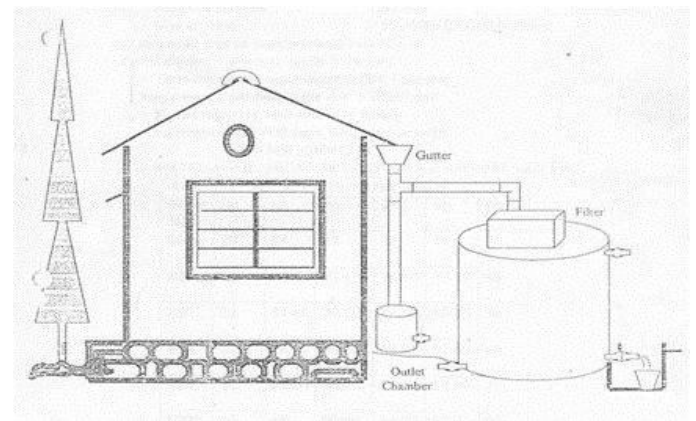


Fig- 4 : Components of Rainwater harvesting.

The system mainly constitutes of following sub components:

1. Catchments
2. Transportation
3. First flush
4. Filter

### 3. BENEFITS:

The collection of rain water and they reap for everyday use has a plentiful number of exciting benefits. Let s look and discover some of these advantages:-

The biggest advantage you can find is less reliance on water storage dams. Less reliance on means to extend a reduced amount of stress on the dams and eliminating

them. Because we, as a limited amount of water available, and it is very expensive and the advantage here is sure to appreciate that you took time to produce water through dams.

Secondly, as soon as you begin to appreciate even a reduced amount of water consumption in the home, with rain water, you thus all your is significantly smaller bills. It would be more than 50-60% off your water bill how incredible slash every month? To have extra money in your Pocket every month with no complaints.

Thirdly, the collected rainwater around the House can be used for many different purposes. These include the washing clothes, dishes and much more. This would prevent groundwater depletion and groundwater table supplement.

Fourth harvest rainwater systems are inexpensive, offer high-quality water, reduce the dependence on fountain. The excess rain water can be used also to recharge groundwater aquifer through artificial recharge techniques.

Finally, it helps to reduce that, because the flow of rain water by collecting rain water, is what can prevent even urban floods reduced soil erosion.

#### 4. CONCLUSION:

On the basis of the water requirement of the College, groundwater conditions of the area and rainwater, rainwater harvesting system for the gastronomy proposes to develop the demand for water for the VNIET. Not only the water level of the groundwater of the region will maintain but save our water resources and electricity consumption for future use.

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