

## **Rain Water Harvesting in the Campus**

### **Preamble**

Due to rapid increase in day-to-day demand for water among fast growing human population, there lies a great opportunity of harvesting rainwater to meet the scarcity of water and avoid destruction of the normal groundwater level. The boon of rainwater harvesting is that the unused or extra water can be sent down the aquifer to charge the groundwater level.

### **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. This green practice can be encouraged in the form of Community Development Program. 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 ecofriendly 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.
- To store the water for gardening & washing purpose.

### **Need for rainwater harvesting**

#### **1 Increasing water demand**

- The rapid rise in human population has made optimum use of fresh water imperative.
- Urban water supply systems in particular are under tremendous pressure to meet the needs of the population as well as industry and large-scale construction.
- The increased need for water results in lower groundwater levels and depleted reservoirs.
- Consumption of polluted water creates health hazards.
- The use of rainwater is a useful alternative

#### **2 Variations in water availability**

- The availability of water from sources such as lakes, rivers and shallow groundwater can fluctuate strongly.
- Unchecked rainwater runoff is causing soil erosion.
- Collecting and storing rainwater can provide water for domestic use

- Rainwater may also provide a solution when the water quality is low or varies during the rainy season in rivers and other surface water resources.

### **3 Responsibilities towards protecting Nature**

- Using more rainwater helps to conserve & augment the storage of ground water
- It helps to arrest sea water intrusion in coastal areas
- It helps to avoid flood & water stagnation in urban areas
- Reduces water and electricity bills

### **4 Advantage of collection and storage near the place of use**

- Collecting and storing water close to households improves the accessibility and convenience of water supplies.
- It costs less to collect rainwater than to exploit groundwater.
- Only traditional knowledge, skills and materials can be used to collect the water and no government technical assistance is required for repair and maintenance.
- Collecting rainwater is the only way of recharging water sources and revitalizing dry open wells.
- It gives an opportunity for communities to come together and work closer. It allows for the decentralized control and community management of water.
- It will provide productive employment to the rural poor in their own villages.

### **5 Quality of water supplies**

- Water supplies can become polluted either through industrial or human wastes or by intrusion of minerals such as arsenic, salt or fluoride.
- Rainwater is the ultimate fresh water.
- Rainwater is generally of good quality.

### **Context of rainwater harvesting**

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

### **Practice**

- In the KDK campus rainwater harvesting system has been installed in Block A, Block B & Girls Hostel. The roof runoff water is collected through network of pipe lines and stored in the wells. There are three wells in the campus where the roof runoff water is stored. The total capacity of storage is 900 m<sup>3</sup>. The remaining roof runoff water is allowed to infiltrate in the ground for recharge. The stored water is used for gardening and washing of vehicles.

➤ **Outcomes**

- In the region, because of less rainfall, there is scarcity of water. This practice has solved the problem of deficiency of water and the ground level of water has increased. The stored water is supplementary for the gardening and washing purpose.

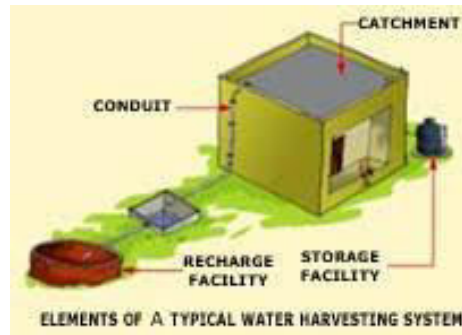
➤ **Water Harvesting Capacity of KDK Campus**

- Block, A=4067 m<sup>2</sup>, Block, B=2282 m<sup>2</sup>, Girls Hostel=477 m<sup>2</sup>  
➤ Total Area= 6826 m<sup>2</sup>

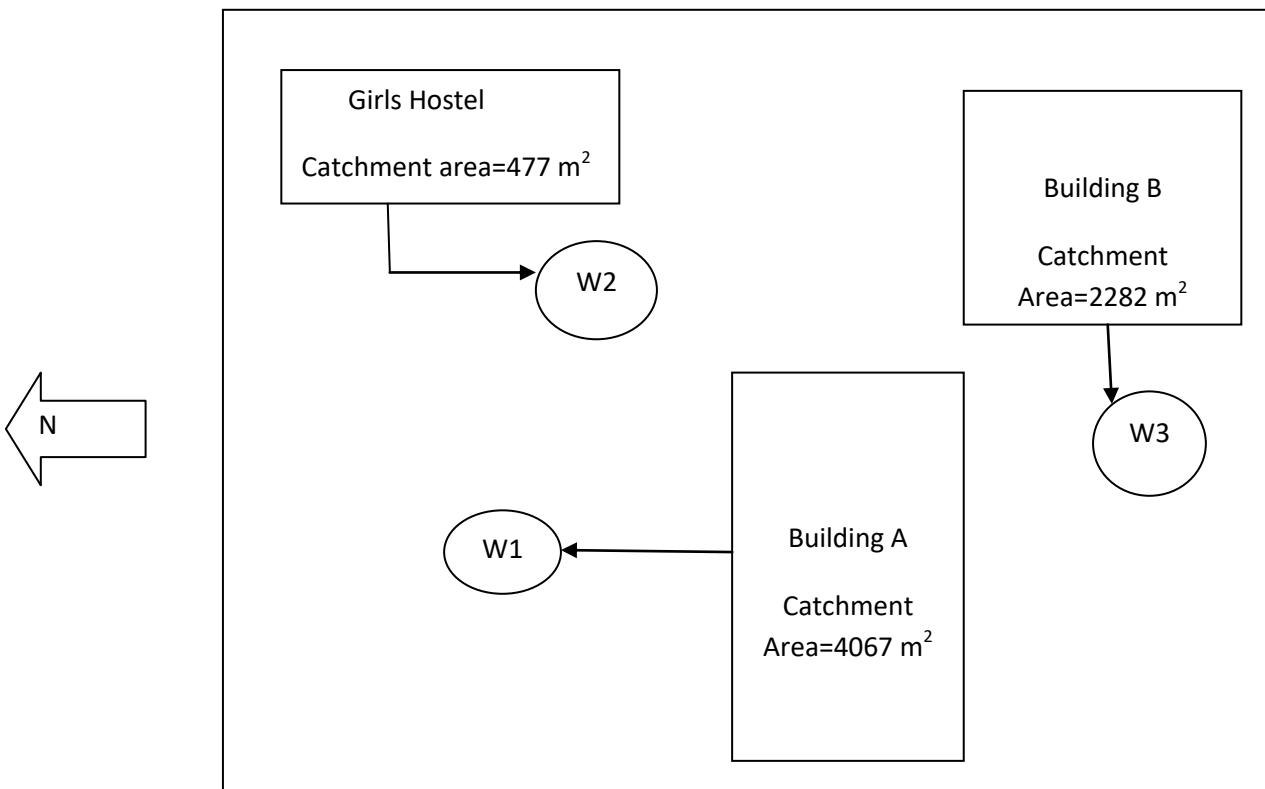
Area m <sup>2</sup>	Average Depth of Rainfall (m)	Volume of Runoff m <sup>3</sup>	30 % losses	Total Quantity m <sup>3</sup>
6826	0.4	2730	819	1911

- Total Quantity of Runoff =1911 m<sup>3</sup>  
➤ The available total capacity of harvesting in KDK campus = 900 m

## Roof Rain Water Harvesting System



## Schematic Diagram of Rainwater Harvesting in the campus



**Photograph of Pipe line network for Roof Rain water Harvesting**



## Rain Water Collected in Well and Tank

