

Environmental and Socioeconomic benefit and Limitations of Water Harvesting Techniques in Semiarid Regions

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Abstract— The effect of water scarcity can be devastated and if we are to preserve water supply for future generations, a proven methods to maintain the hydrological balance and the biological function of the ecosystem should be adopted. By harnessing innovative technologies and improving indigenous ones, efforts must be made to effectively manage this water sources and to ensure they remains pollution free. At the rate in which India's population is increasing, it is said that India surely Replace china from its number one position of must densely populated country of the world after 2030. These will lead to high rate of consumption most valuable natural resources 'Water' resulting in augmentation of pressures on the permitted freshwater resources. Ancient method of damming river and transporting water to urban area has its own issues of internal trouble of social and political. In order to conserve and meet our daily demand of water requirement, we need to think for alternative cost effective and relatively easier technological method conserving water.

Keywords: Syntax, Pipes, Filtration, Roof Top, Tank

I. INTRODUCTION

Water is our most precious natural resource (Sustainable Earth Technologies, 1999). Its uses are innumerable and its importance cannot be overestimated. Its role ranges from domestic uses, agriculture, and industry to religious ceremonies, recreation, landscape decoration and even therapy. Water is basic to life.

In Fresno, California, where water is becoming ever more precious, a few farmers have decided it is more profitable to sell their water supplies in lieu of using them to water their crops. You see, water shortages this season in the U.S. Southwest are the worst they've been in the past ten years, and prices are responding accordingly much the same way a shortage of oil drives the price per barrel higher.

A water crisis is when there is not enough potable water for a population, which in turn leads to drought famine and death. Did you how that only 2.5% of all the water in the world is fresh water? And only 1% is accessible, by accessible I mean trapped in glaciers and snow fields. We only have real access to 0.0007⁰s» of the planets water, that's all we have to feed and fuel over 6.8 billion people. The lack of clean water is a plague which affects 1.8 billion people every year.

II. RAIN WATER HARVESTING

Rain water harvesting (RWH) is a technique of collection and storage of rainwater into natural reservoirs or tanks, or the infiltration surface water into subsurface aquifers (before it is lost as surface runoff). One method of rainwater harvesting is

rooftop harvesting. With rooftop harvesting, most any surface tiles, metal sheets, plastics, but not grass or palm leaf - can be used to intercept the flow of rainwater and provide a household with high-quality drinking water and year-round storage. Other uses include water for gardens, livestock, and irrigation, etc. The collection of rainwater and harvesting it for everyday use has an ample number of exciting benefits. Let's take a look and discover some of those benefits.



Fig. 1.1: Rainwater harvesting

Installation of rainwater harvesting system is not that expensive, plus it's a one-time installation, and that's it. The only routine maintenance required is cleaning out the tank. You will probably hire an expert technician to install the system for you. The technician won't quote a high price, plus he will offer free advice on the best rainwater system to buy. He will also help out when buying the system to ensure you get the best quality rainwater harvesting system. When you sum up the overall cost of installing the system, you'll find that it's actually manageable. Once you begin using rainwater you will also appreciate a reduced amount of water consumption in the home, thus all of your utility bills will greatly shrink in size. How incredible would it be to slash as much as 50 to 60% off of your water bill each month? No complaints with having additional money in the pocket each and every month.

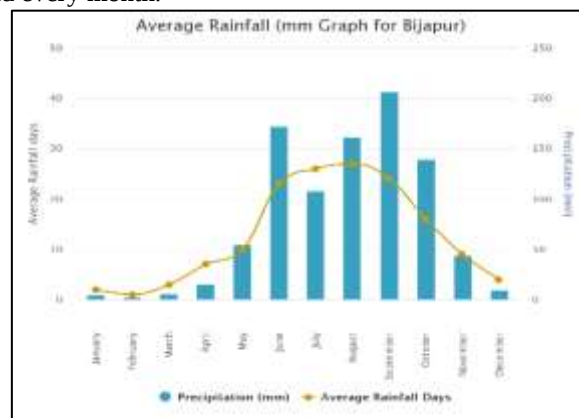


Fig. 1.2: Average rainfall

III. RAIN HARVESTING METHODS

It is simple to collect rainwater from building roofs and numerous other sources. As long as you are ready and equipped with a couple of different items you have all that it takes to begin rainwater harvesting and enjoying naturally delicious, clean and useful water. Rainwater harvesting systems can be purchased complete from various home improvement stores. The cost of these systems will vary. Rainwater harvesting is an innovative technique utilized to harvest rainwater from roofs and other above surfaces to be stored for later use. Rain harvested water can be used for garden and crop irrigation, watering livestock, laundry, and flushing toilets. However, you cannot use harvested rainwater for showering, bathroom sink or kitchen use because it's not really fit for consumption.

In a normal scenario the rainwater is collected from roof buildings and then stored inside of a special tank. Rainwater harvesting systems are designed after assessing site conditions that include rainfall pattern, incident rainfall, subsurface strata and their storage characteristics. Rainwater harvesting is popular all across the world, although in countries that are very dry, such as Australia, it is even more popular.

Rainwater can be harvested and used by those in the city who have running city water just as well as it can be used by those in more rural towns where adequate water supply may be unavailable. It is simple to replace many things that you are using regular city water with rainwater and enjoy numerous benefits when you do. Not only it helps you to conserve water but can also help you to save energy as the need to maintain centralized water system can be by passed. If you are worried about your roof being dirty, put that fear to the side. Many different tools are available to help you easily clean your roof. Hiring a roofer to come provide you with a cleaning is another option that you will have available.

Individuals are driven to harvest rainwater because of a wide range of factors such as unpredictable weather patterns, enhanced costs of infrastructure and explosion of water consumption. On top of that, most businesses and homes are looking to embrace green practices to become efficient and a lot more self-reliant. In this case, rainwater presents the obvious choice because it is the easiest and quickest method to minimize water consumption. Most homeowners that have embraced this practice have reported a reduction of about 50% in water bills. On top of helping to reduce water bills, rainwater harvesting helps the environment a lot.

IV. OBJECTIVES OF PROPOSED WORK

- 1) To meet the increasing demand of water.
- 2) To Control Wastage of Rain Water.
- 3) To avoid the flooding of roads.
- 4) To make the Unit Independent for Water Consumption.

V. EXPECTED OUTCOMES OF PROJECT

- 1) One of the best way to solve the world burning facing issue water scarcity.

- 2) By installing given rain water harvesting system every year huge amount of water will be saved and huge expenditures on procurement of water will be reduced.
- 3) The huge amount of precipitation occurring on the ground can be harvested and utilized for different purposes.
- 4) Optimum use of water and adopt efficient methods of collecting and saving the rainwater.
- 5) Therefore rain water harvesting should be improved to gain sustainability in various aspects in rural as well as in urban areas.

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