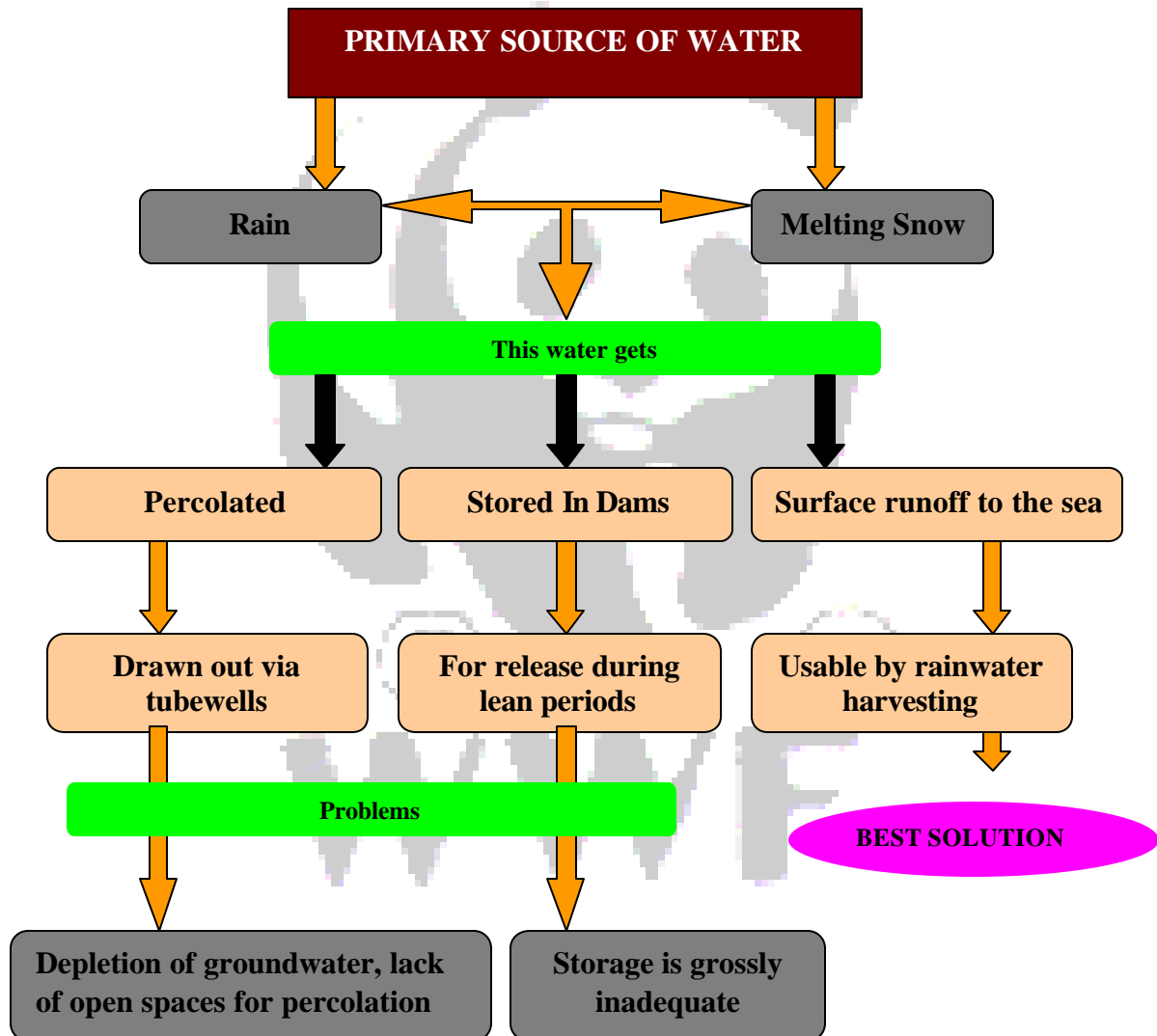


RAINWATER HARVESTING IN DELHI

Introduction: The most suitable solution to meet the increasing demand of the scarce water supply is but rainwater harvesting. An effective efficient and cheap solution, it has a lot more to offer. Claiming to have the potential for a self-sustainable development let us see why we need it and how simple is it to incorporate it in our day to day lives.



A Flow Chart – Identifying where Water Harvesting comes in the Whole Picture

Water Crisis in Delhi

- ❖ While per capita availability of water in Delhi is **232 litres**, some parts get 30 litres per capita, whereas, 5% of the population gets 450 litres per day.
- ❖ **15%** of the water is lost during **distribution** and about **40% is stolen**.
- ❖ Only **20%** of the water available is used for cooking and drinking, rest is used for washing etc.
- ❖ 1 litre of mineral water costs Rs 10-12; one pays **35 paise for 1000 litres** of water.
- ❖ 90% of drinking water in India comes from **ground water resources**, while in Delhi, 70% of the requirements are met from **surface water sources**, because underground water is fast depleting in quantity and quality.
- ❖ Percolation is less as the earth surface is covered with buildings, roads, pavements etc, lower the water table level by 20m in some areas.
- ❖ 60% of the rainwater goes down the drain as **surface runoff**.

Solution to Water Crisis: Rainwater Harvesting

Simply put, 'rainwater harvesting' or 'ground water recharge' **is the deliberate collection and storage of rain water**. The rainwater is captured to recharge ground water.

INTACH says, 'storing only 1% of the total rainfall in India is enough to meet the country's domestic requirement of water'.

- The water can be **collected** in rooftops or compounds.
- The amount of water harvested depends on the **frequency and intensity** of rainfall, catchment characteristics, water demands and amount of runoff.
- It depends on how quickly water can get down to the sub-soil and **recharge** the aquifers.

There are about 500 catchment areas in Delhi that can be utilised to conserve and hold water.

Disadvantages of Rainwater Harvesting

The water used for harvesting is full of pollutants leading to **health problems**. Polluted environment results in:

- ❖ Increasing amount of nitrates and fluorides in the water
- ❖ High content of cadmium, lead, iron and chromium in the water.
- ❖ Bacteriological contamination levels are rising in water.

Advantages of Rainwater Harvesting

- ❖ An ideal way to solve the water problem
- ❖ The ground water levels will rise
- ❖ It reduces the runoff which chokes the storm water drains
- ❖ It reduces flooding of roads, also reducing soil erosion
- ❖ The quality of water improves
- ❖ Power consumption is reduced as a one-metre rise in water levels results in saving 0.4 K^W H of electricity.

How to Harvest Rainwater...

Rooftops: If buildings with impervious roofs are already in place, the catchment area is effectively available free of charge and they provide a supply at the point of consumption.

Paved and unpaved areas: This would include landscapes, open fields, parks, stormwater drains, roads and pavements and other open areas. These can be used to effectively harvest the runoff. The main advantage of this is that the water can be collected from a larger area.

Water bodies: Lakes, tanks and ponds have immense potential to store rainwater. The harvested rainwater can not only be used to meet water requirements but also to recharge groundwater aquifers.

Stormwater drains: Most of the residential colonies within the city have a well-developed network of stormwater drains. If maintained in a neat manner they offer a simple and cost effective means of harvesting rainwater.

How to Recharge Groundwater...

Pits, trenches, abandoned dugwells, hand pumps, recharge wells or shafts or lateral shafts with borewells will do the job. **The cost:** Rs 2,500 – 5,000 for a recharge pit to Rs 60,000 to 85,000 for a recharge shaft. Hand pumps however are among the cheapest options wherein you simply connect an abandoned hand pump to a rainwater harvesting system.

RAINWATER HARVESTING LESSONS FROM THE PAST

- **Harappan civilization:** A very good system of water management.
- **Ancient period:** In Tamil Nadu, rainwater was stored in public spaces separately for drinking and bathing purposes, which were called as **Ooranies**. Percolation tanks or ponds were also made for the purpose of recharge irrigation.
- **Pre-independence era:** Rainwater harvesting structures existed in low rainfall areas of Rajasthan; harvesting springs in hilly areas and mountainous regions; percolation ponds and tanks in Southern India.
- Villages in **Thar Desert** had an ingenious system of rainwater harvesting known as *kund* or *kundis* i.e. covered underground water tank.
- In **Spiti valley** of Himachal Pradesh, *kul* (diversion channels) irrigation is utilised to carry water from the glaciers to the village.
- Havelis in **Jodhpur** and **Jaisalmer** channel every drop of water into a container – usually under the courtyard, to store rainwater.
- The **Viceregal lodge** in Shimla, of 1880s, channels every drop of water from the roof of the building into two large tanks – one under the main front garden and the second next to the council chamber.

Initiatives taken so far...

- Rainwater harvesting is made mandatory for [group housing societies](#) and for certain large sized [residential, commercial and industrial complexes](#). They have been successful in Panchsheel Society, Defence Colony C block etc.
- The Central Ground Water Board (CGWB) did a presentation for University Grants Commission (UGC), on successful rainwater harvesting. Rainwater harvesting has been very successful in [institutions](#) like Jawaharlal Nehru University, Jamia Hamdard University, which are majorly dependent on ground water. Hence, UGC has asked all universities to harvest rainwater, promising them financial assistance.
- Delhi-based NGO, [Centre for Science and Environment](#) (CSE) has worked for the past many years to highlight the importance of rainwater harvesting in both, rural and urban areas. Rainwater harvesting is found to be a simple yet extraordinarily powerful, people-friendly technology that has the potential to combat water crisis and drought in the country. On Earth Day 2003, CSE launched a new and comprehensive [website](#) on rainwater harvesting. Creating water literacy is the *key to change* for them.

DELHI CANTONMENT: Unused Potential

The Delhi Cantonment Board (DCB) extracts about **5 lakh litres** of **groundwater** per day through its borewells, and the per capita consumption of water per day is the highest, 500 litres. The land here is eminently suitable for water harvesting as the ground water depth varies from 15 – 35m below ground level. Large areas of built up sections are paved and concretised, so the rainwater can be easily channeled to dug wells and recharge shafts. Huge parade grounds, shooting ranges and unutilized fallow land can be used for water harvesting. Yet, **water conservation is not done** in any form.

As seen above, rainwater harvesting offers a solution which is not only practical but also economical and environmentally feasible. It will indeed become inherent in the lifestyle of every man.

WWF-India as an ENVIS Centre/Node has been keeping a tab on the media activity on environment related issues and carries out analysis on different issues in media.

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