

LET US GROW OUR OWN WATER

BACKGROUND

- Bangalore has a population of 1.23 crore, and it is projected to increase by 5 lakh every year
- BWSSB (Bangalore Water Supply and Sewerage Board) can only provide water to 60% of the population.
- Cauvery water is pumped over a height of more than 500m, over a distance of 100km, and the government spends Rs. 300 crores (~\$430,000) only on electricity.
- RWH methods consist of - Rainwater Storage and Groundwater Recharge and existing methods are not very effective.
- Due to financial and storage constraints individual tanks have limited capacity, hence the excess rainwater goes into storm water drains.
- Rainwater Recharge pits are NOT mandatory at individual levels. Among the many factors to consider for constructing a recharge pit, the surface, soil type and the depth to ground water are the most important to consider (India water portal, 2018). The question that arises is if the existing recharge pits that have been constructed have considered the lateritic and loamy soil conditions of Bengaluru for the rain water to reach the aquifers for effective recharge.
- In addition, indiscriminate digging of borewells and lack of injection wells next to borewells have led to large scale water scarcity.

RESEARCH QUESTION

How can rainwater harvesting systems be made more effective to reduce the burden on the government, in the context of Bengaluru?

WATER THAT CAN BE COLLECTED

Average Annual Rainfall in Bengaluru	1 Metre
Average Consumption per Person per Day	150 Litre
Average Consumption per Person per Year	54750 Litre
Roof-Rainwater Storage	
An Individual house:	
Average Rooftop Catchment Area	100 Sq. Metres
Average Amount of Water Collected per Year	100000 Litres
An Apartment complex:	
Average Rooftop Catchment Area	2300 Sq. Metres
Average Amount of Water Collected per Year	2300000 Litres
Groundwater Recharge Pit	
Required Depth of the Recharge Pit	2.4 Metres
Required Diameter of the Recharge Pit	0.25 Metres

INTRA-COMMUNITY ROOFTOP WATER GRID

Every rooftop collects rainwater for contribution.
Collected water goes through basic filtration.
Filtered water from all rooftops flows into the grid and stored in the common community tank.
Water is purified and used for consumption.



BENEFITS

- Stores more water than at an individual house level
- Reduced dependence on municipal water supply
- Instills social responsibility amongst residents through sharing
- Surplus water can be shared back for the needy

BEST PRACTICES

Gujarat: Due to clayey soils in South Gujarat, injection wells up to depth of 12m need to be dug near borewells.

Germany: Germany imposes a tax that is proportional to impervious areas, such as concrete or asphalt, that does not absorb rain to the surface.

Japan: Tokyo has world's largest flood diversion facility.

Ancient Indian Wisdom: Seeds like Haritaki, Amla and Moringa were used for natural water filtration. Water usage was judicious as it was considered a precious resource.

ACKNOWLEDGEMENTS

- MJR Builders, Bengaluru
- Infosys, Bengaluru
- Prof. M. Sekar, Indian Institute of Science

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