

RAINWATER HARVESTING & RECHARGING PROJECT- "WHAT DID WE DO AND HOW"

Prepared by CYGNUS MICROSYSTEMS (P) LIMITED, Cherlapally, Hyderabad.

A case study

WHY DID WE DO IT ?

Our company is located in Cherlapally Industrial Area.

The terrain in our area is rocky in parts. The experience of the plot owners here has been strange with regard to ground water. Somebody could hit the water at 50 feet depth while another about 100 feet away from this spot could not reach it even at 600 ft. Thus, we are always under the fear of groundwater getting exhausted. This would lead us to out source water for pantry and toilet usage and, also to forgo greenery.

Secondly, there is no supply of drinking water in the area, which forced us to purchase mineral water, at an average cost of Rs.6,000 per month.

The alternative solution for both the problems mentioned above, seemed to be rainwater harvesting and collection.

AND WE DID IT !

Currently we are collecting and storing about 65,000 litres of rainwater for human consumption and about 75,000 litres for gardening meant to be used during the acute scarcity in summer. We are channelising the rest of the rainwater falling on our plot into two recharge pits to try and improve the ground water level.

HOW DID WE DO IT ?

We collected as much information as possible through various sources like CSE (Center for Science and Environment), HMWSS, NGRI, etc. We are very thankful to all of them for their valuable suggestions.

We hired a Civil engineer to design, implement and monitor the project.

IMPLEMENTATION -

Overall harvesting potential : 4000 sqm (plot area)

Average rainfall in Hyderabad (annually) - appr 60 cm (0.6 m)

Expected harvestable rainfall
(out of the above specified)

appr 30 cm (0.3 m)

$4000 \times 0.3 = 1200 \text{ cu.m or } 12,00,000 \text{ litres}$

Drinking water tank:

Roof catchment area

215 sqmts

(cordoned out portion of main terrace)

Volume of expected harvested

$= 215 \times 0.3 = 64.5 \text{ cu mts}$

Rainfall

$= 65,000 \text{ liters.}$

Gardening Tank :

Roof catchment area

275 sqmts

(Parking shed)

Volume of expected harvested

Rainfall (as calculated above)

$= 275 \times 0.3 = 72.5 \text{ cu mts} = 72,500 \text{ liters.}$

Recharging

The total storage capacity created is $65000 + 72500 = 137500$ litres. Rest of the rainwater falling on the plot is channelled into two recharging pits located at the lower part of the plot. Arrangements have made to maximise the chances of this water percolating into the ground through these pits.

PROJECT STATISTICS / COSTING -

Designing, consultation and supervisory charges	-	Rs. 25,000/-
Implementation expenses (including excavation of two recharge pits and sumps, masonry work, piping, filter-bed and other material)	-	Rs.2,00,000/- (on contract)
Salaries (full-time supervisor)	-	Rs.30,000/-
Thus the cost of investment per litre	-	Rs.3.80

BENEFITS

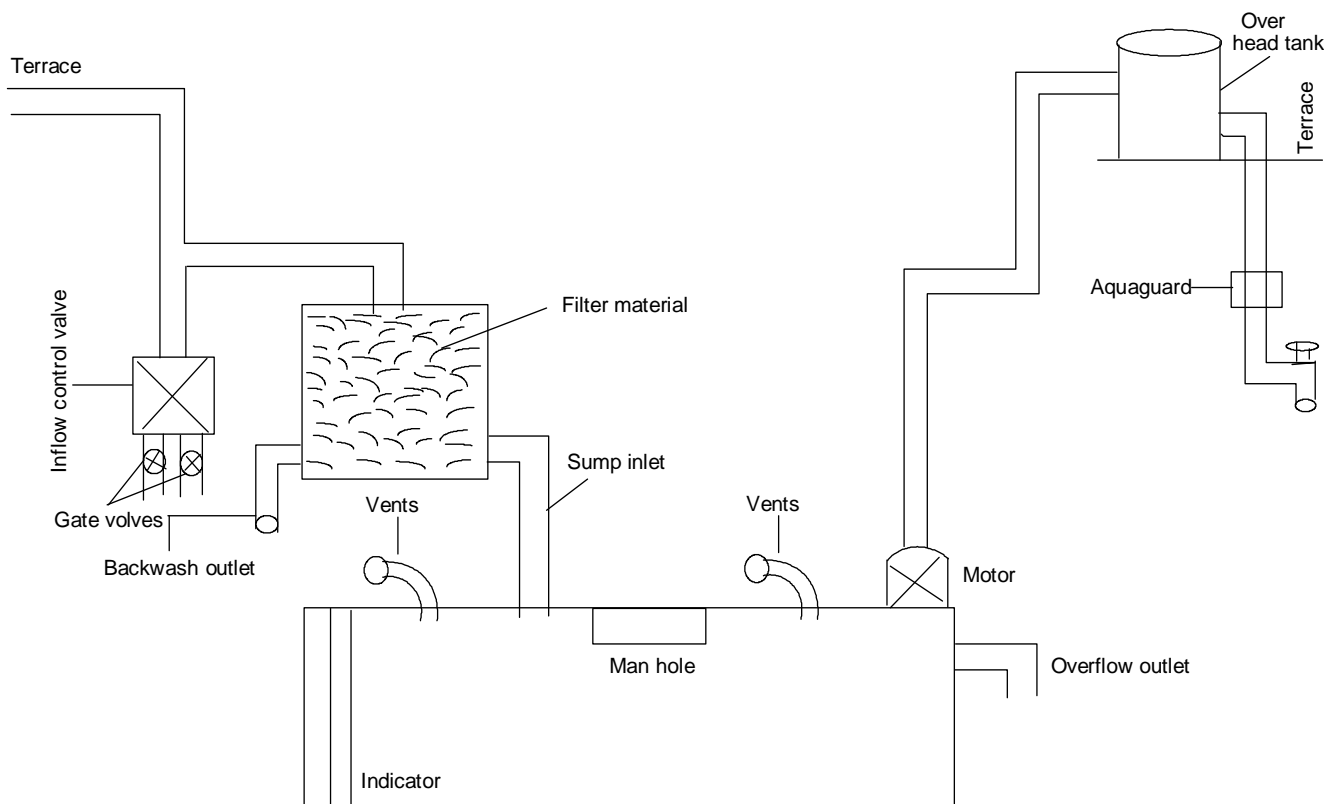
Our expenses on drinking water before rainwater project :

Mineral water	-	Rs.6,000/- per month
Rainwater (Maintenance + pumping) (includes periodical chlorination, cleaning of the roof top area and cleaning of the sump once in a year)	-	Rs. 500 per month
Savings	-	Rs. 5,500 per month or Rs. 66,000 per year
Capital cost of project	-	Rs. 2,50,000
Pay back period:		3-4 years approx.

Good quality, clean water available throughout the year

N.B: We have been getting the stored water quality tested periodically and have not found any deterioration in its quality. Maintenance requirements include chlorination of drinking water and cleaning of the sumps and filters (once in a year).

The schematic of the rain water collection system for drinking is given below



You are welcome to contact us for a visit, or to obtain any first hand information or guidance based on our experience.

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