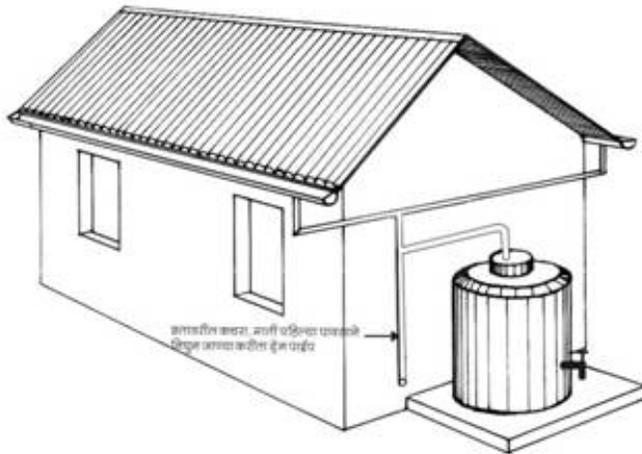


Rain Water Harvesting:

Roof Top Rainwater Harvesting for Recharging of wells:



Centre of Science for Villages, Wardha is doing various experiments for raising ground water level. Some of these experiments found very much successful, details are given below about all those successful models.

Rainwater harvesting

Since all source of water is ultimately rain, all water supply systems are in effect rainwater-harvesting systems. A proper definition for this term to understand its spirit

would in effect necessarily have to take into consideration the difference in catchments. While previously catchments were typically far off from the urban rural area it served, now the cities & villages it self is seen as a catchments for its water requirement. Rooftops paved areas and unpaved areas and the entire village itself is therefore to be managed as water provision area. The process of Rainwater harvesting would encompass catching rainwater, directing it to an appropriate location, filtering it if required and storing it for use. Storage could be in tanks, sumps, ponds or lakes. Wherever appropriate and conditions permitting recharge of ground water would also qualify as storage. Harvested water could be used immediately as a first choice thus saving village level supplies or ground water for a future date or a decision could be to store it for later use say during water shortage days.

Typical Structure

Designing a roof top rainwater harvesting system would mean taking the following steps. Making slope in the roof appropriately preferably towards the direction of storage and recharge. Design of gutters and down-pipes is depending on site rainfall characteristics and roof characteristics. Putting in place a first rain separator to divert and manage the first 2.5 mm of rain. Filtering the water is to remove solid and organic material. Storage of the filtered water in appropriate storage units like sumps, tanks etc. and finally recharging the ground water through open wells, bore-wells or percolation pits.

Collecting Rooftop Rainwater in to the Tank

A Ferro cement tank of 1000 litre capacity will be installed in village near each house and all roof top rainwater will be collected in to the tank. This water tank can be intact for long period can be use during the scar village of water especially in summer for drinking purpose

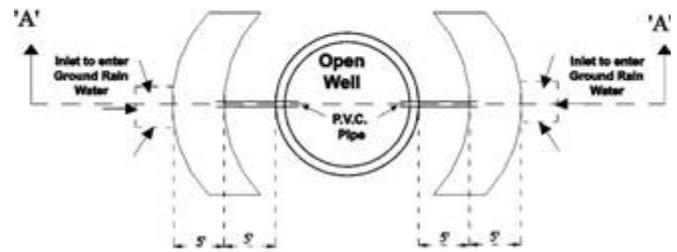
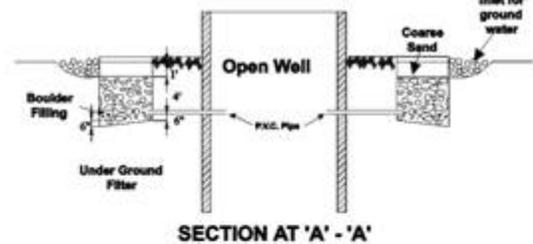
Recharging of Well

All the outlets of the roof connected by Using PVC Pipes & some masonry work on the top of roof all the water over roofs is collected & allowed to flow to the bore-well which is near by that building. Two bore-wells in the campus are connected with PVC Pipes, while connecting a specially designed filter is attached at the end near the bore-wells. Drawing is attached with this report. Effective results will be achieved by these systems & can be used every where, where

the roof top water is waste.

Rain Water on Ground for Recharging of open well

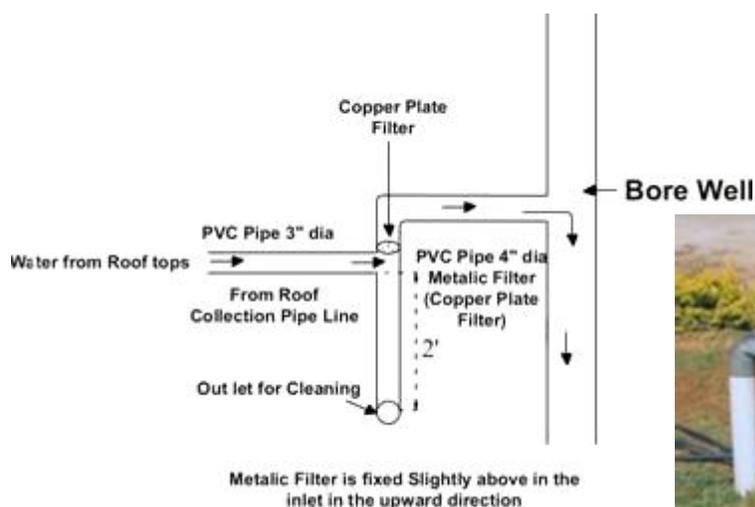
- ❖ All ground water in the catchments & near by farms is allowed to flow to the open well. While doing this water enters in the under ground filter constructed near the open well. Two under ground filters to the both sides of well are constructed in the following manner.
- ❖ First two pits of 6 feet wide & 6 feet deep having length slightly less than half the length of the circumference of the well are excavated.
- ❖ A trench connecting well & the pit excavated in the above step is excavated & connected with a PVC Pipe having 6-inch diameter. This pipe is kept 6 inch above the bottom of the pit. Same procedure is repeated for another pit.
- ❖ Both the pits are filled with large size stones, while filling care is taken that the gap should remain in between the stones so that rainwater should pass through it.
- ❖ When complete pits will be filled with stones top is covered with plastic. Excavated soil is spread over with plastic, while doing this a gate is made to enter rainwater into the pit. Gates are made for both the pit. Drains are excavated in the direction of gate so that rainwater falling on the ground will be collected by these drains & will enter through gates & after filtration this rainwater will be collected in the open well.



PLAN
Recharging of Open Well

Recharging of Bore Well by Soak Pit Method

Roof top rain water is collected using PVC Pipe line & allowed to soak in the soak pit constructed around the bore well as shown in the figure

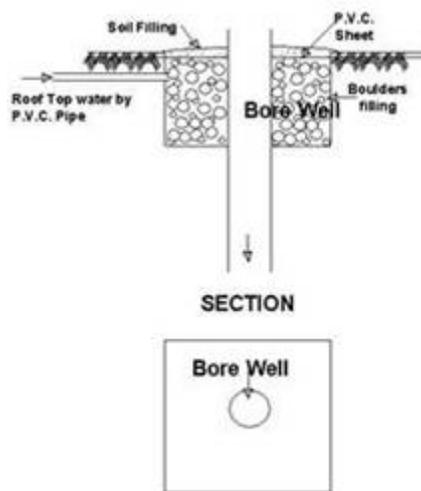


Bore Well Recharging by Roof Top Rain Water

Designing a roof top rainwater harvesting system would mean taking the following steps.

- ❖ *Making slope in the roof appropriate preferably towards the direction of storage and recharge.*
- ❖ *Designing of gutters and/or down-pipes depending on site rainfall characteristics and roof characteristics.*
- ❖ *Putting in place a first rain separator to divert and manage the first 2.5 mm of rain. Filtering the water to remove solid and organic material.*
- ❖ *Storing the filtered water in appropriate storage units like sumps, tanks etc.*
- ❖ *Finally recharging the ground water through open wells, bore-wells or percolation pits.*

Bore Well Recharging by Soak Pit Method



Collecting Rooftop Rainwater in to the Tank: A Ferro cement tank / PVC Tank of capavillage according to the rainfall chart is installed near the, building and all roof top rainwater is collected in to the tank. This water tank can be intact for long period can be used during the scarvillage of water especially in summer for drinking purpose.

Recharging of Well: - All the outlets of the roof connected by Using PVC Pipes & some masonry work on the top of roof all the water over roofs is collected & allowed to flow to the bore-well which is near by that building. The Bore-well is connected with PVC Pipes, while connecting a specially designed filter is attached at the end near the bore-wells. Drawing is attached with this report. Effective results will be

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 - ❖ Storing the filtered water in appropriate storage units like sumps, tanks etc.
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