

Rainwater harvesting-III

3. Recharging of Bore Wells

Rainwater collected from the rooftop of the building is diverted through drainpipes to settlement or filtration tank. After settlement, filtered water is diverted to bore wells to recharge deep aquifers. Abandoned bore wells can also be used for recharge.

Optimum capacity of the filtration tank can be designed which is based on the area of catchment, intensity of rainfall, and recharge rate. While recharging, entry of floating matter and silt should be restricted to avoid clogging. The first one or two showers should be flushed out through rain separator to avoid contamination.

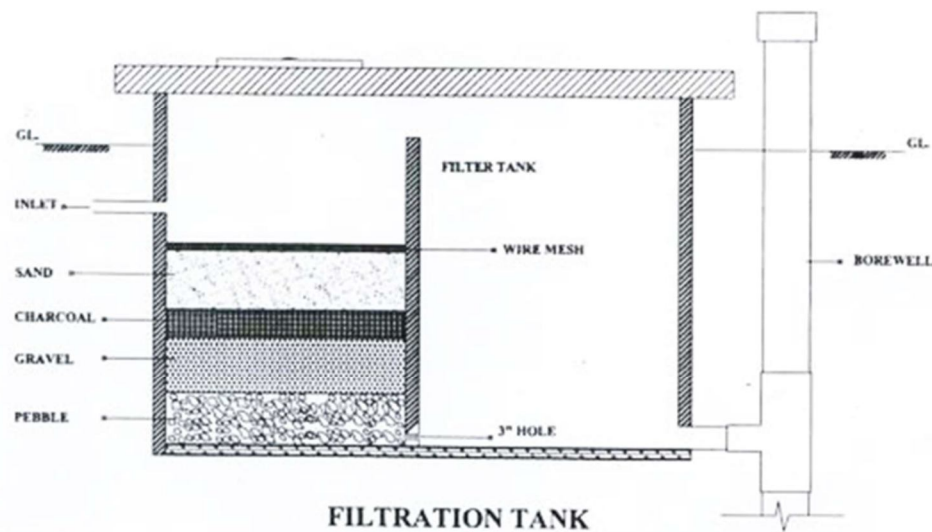


Fig : Filtration Tank Recharging to Bore Well

4. Recharge Pits

Recharge pits are small pits of any shape rectangular, square, or circular constructed with brick or stone masonry wall with weep hole at regular intervals. Top of the pit can be covered with perforated covers. The bottom of the pit should be filled with filter media.

The capacity of the pit can be designed based on the catchment area, rainfall intensity, and recharge rate of the soil. Usually, the dimensions of the pit may

be of 1 to 2 m width and 2 to 3 m deep, depending on the depth of previous strata. These pits are suitable for recharging of shallow aquifers, and small houses.

5. Soakway or Recharge Shafts

Soak away, or recharge shafts are provided where the upper layer of soil is alluvial or less porous. These are the bored hole of 30 cm dia. up to 10 to 15 m deep, depending on the depth of the pervious layer. Bore should be lined with slotted/perforated PVC/MS pipe to prevent the collapse of the vertical sides. At the top of the soakaway, the required size sump is constructed to retain runoff before the filters through the soakaway. Sump should be filled with filter media.

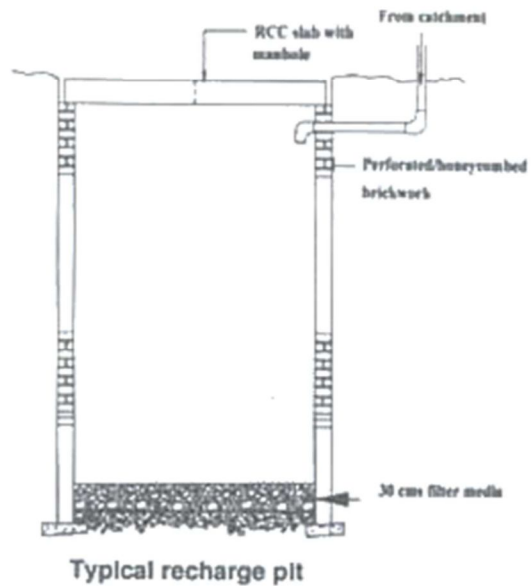


Figure Recharge pit

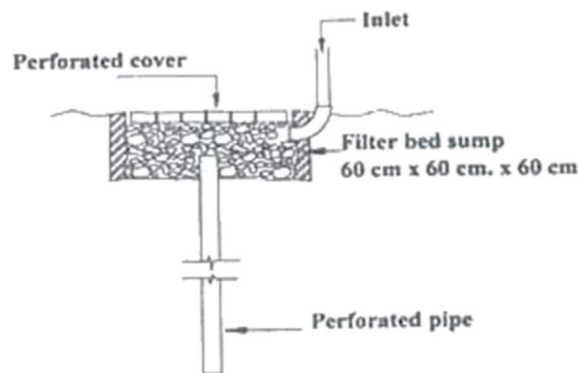


Fig: Schematic Diagram of Recharge shaft

6. Recharging of Dug Wells

Dug wells can be used as a recharge structure. Rainwater from the rooftop is diverted to drilled wells after passing it through the filtration bed. Cleaning

and desalting of dug well should be done regularly to enhance the recharge rate. The filtration method suggested for bore well recharging could be used.

7. Recharge Trenches

The recharge trench is provided where upper impervious layer of soil is shallow. The recharge trench excavated on the ground and refilled with porous media like pebbles, boulders, or brickbats. It is usually made for harvesting the surface runoff.

Bore-wells can also be provided inside the trench as recharge shafts to enhance percolation. The length of the trench is decided as per the amount of runoff expected.

This method is suitable for small houses, playgrounds, parks, and roadside drains. The recharge trench can be of size 0.50 to 1.0 m wide and 1.0 to 1.5 m deep.

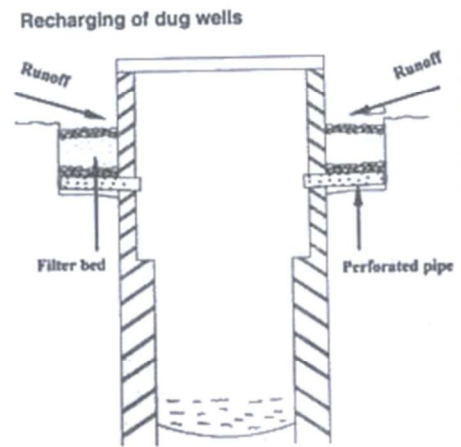


Figure Schematic Diagram of Recharging to Dug Well

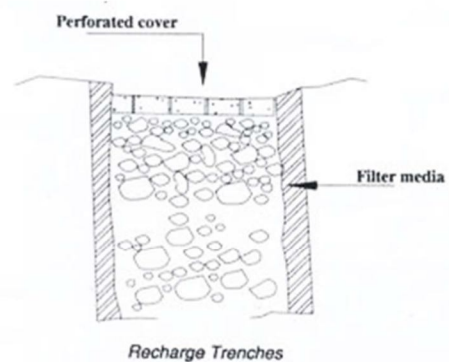


Fig: Recharging to Trenches