



தலைமைச் செயலகம்
சென்னை - 600 009.

நாள் : 22-05-2007

மு.க. ஸ்டாலின்

உளரக வளர்ச்சி மற்றும்
உள்ளாட்சித் துறை அமைச்சர்

நீரின்றி அமையாது உலகு

நீர், நிலம், காற்று, ஆகாயம், நெருப்பு -

இப்பஞ்சபூதங்களின் நிலையில் "நீர்" முதன்மை பெற்றது

நீரின் ஆதாரம் மழைநீர்.

நீரின் பயன்பாட்டிற்கும் நீரின் செறிவுடலுக்கும் இடையே உள்ள தூரம் மிகமிக அதிகம். இந்த நிகழ்வு தமிழகத்தின் நீர் வளங்களைப் பாதிக்கிறது. சூழ்நிலைக் குழாய்கள் அளவு வேகத்தில் அமைக்கப்பட்டு அதிக சக்தி குதிரைத் திறன் கொண்ட இறைப்பான்களின் உதவியுடன் ஆழத்தில் உள்ள தண்ணீர் வெளிக்கொணரப்படுகிறது.

தண்ணீர் மேலாண்மை தமிழகத்தின் முன்னுரிமை

நிலத்தடி நீரைப் பெருக்கவும், மழை பெய்யும்போது நிலத்தின் மேல் வழிந்து வீணாகக் கடலில் கலக்கும் நீரைத் தடுத்து சேமிப்பதும் மிகவும் அவசியமாகிறது.

மழைநீர் சேகரிப்பின் அவசியம். பொதுமக்களிடையே சென்றடைய மழைநீர் சேகரிப்பு முறைகள் பற்றிய விளக்கங்கள் மக்களுக்கு அளிக்கப்படுகிறது.

மழை பெய்யும் காலங்களில் ஒரு துளி நீர்கூட வீணாகாமல் சேமிக்க நு வழக்கை எடுத்தீடுமாறு அன்புடன் கேட்டுக்கொள்கிறேன்

"மணி நீரும் மண்ணும் மலையும் அணி நிழற் காடும் உடையது அரண்"

என்ற உலகப் பொதுமறைக்கேற்ப நல்ல நீரும், நற்கடலும், நஞ்சற்ற மண்ணும், அழகு தவழும் மலையும், வளம் கொழிக்கும் காடுகளும் கொண்டதாக தமிழகத்தை அமைக்கப்போம்.

(Handwritten signature)

(மு.க. ஸ்டாலின்)

Rainwater Harvesting methods

Broadly rainwater can be harvested in two ways :

1. Roof top rainwater harvesting
2. Open surface run-off harvesting

Rainwater :

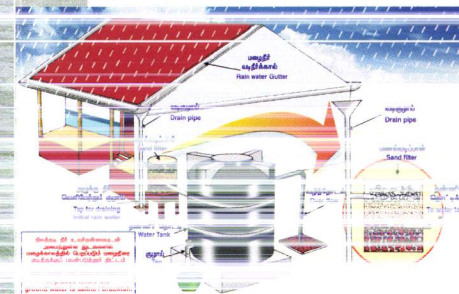
Basically, these are simple and common methods from which any combinations can be selected based on the site conditions such as the extent of the building and sub-soil conditions. For example, in large apartments / commercial complexes, number of units of RWH structures may be increased since the volume of the rainwater collected is more.

How much water can be harvested ?

Amount of rainwater harvesting depends on the annual rainfall, total area of collection and the amount of recharge into the ground.

Average annual rainfall	958 mm. (0.96m.)
Amount of rainwater collected in one ground plot (223 sq m.) per year	223 x 0.96 / 214.08 cu.m./ 2,14,000 litres / year
Volume of water recharged into the ground (considering of 60% effective recharge)	1,28,400 litres / year
Average days of rainfall in an year	45 - 55 days
Average Amount of Rainwater can be harvested per day	2,500 litres

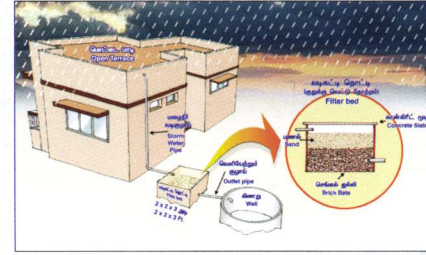
Rainwater Harvesting - Thatched/Tiled roof



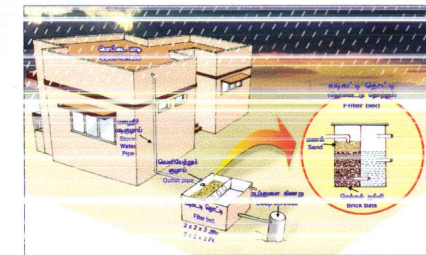
- Rainwater from the roof is collected through the gutters in the roof.
- The collected water is filtered through a filter containing pebbles and sand.
- The filtered water is collected either in a storage tank or existing sump for use.
- If it is a thatched house, polythene sheets can be used for collecting the rainwater.

Rainwater Harvesting by Open Wells

- Rainwater collected from the terrace is diverted to the existing open well through a filter chamber/ sump.
- The size of the filter chamber may be 2' x 2' x 3' filled by gravel/pebbles in the bottom and coarse sand on the top.
- The chamber may be covered with perforated slab.



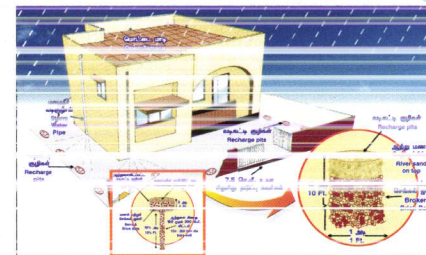
Rainwater Harvesting through Borewells



- Rainwater collected from the terrace is diverted to the bore well through a filter chamber/sump.
- The filter chamber/sump to be constructed as per the diagram (2' x 2' x 3').
- Overflow water may be diverted to a percolation pit nearby.
- The defunct/unused borewells can also be used to harvest rainwater.
- The percolation rate of rainwater will be less in borewells compared to open well.

Recharge/Percolation Pit Method

- Pits are installed in the open space around the house with sufficient spacing in between.
- Size of the pit is 3' x 3' x 4.5' (Depth).
- Pits can be made in Square / Rectangle / Round shape.
- Pits can be filled up with Gravel / Pebbles / Sand.
- Best suited for sandy areas.
- In clay soil area, a bore hole of 150-300 mm diameter in the centre of the pit upto the depth of permeable soil should be constructed.
- One pit for every 300 square feet of roof area is necessary.



Things to be remembered

1. The nature of Rain Water Harvesting (RWH) structures and their design parameters remain the same for any building except the physical scale (size) and no. of structures which may increase corresponding to the size of the catchment.
2. For harvesting rain water in open space around the building, a dwarf wall of required height (approx. 7.5 cm.) should be constructed at the entrance (gate) to avoid surface run-off and to make rainwater available to recharge.
3. If manholes (waste water line) are present in the open space, the height of which have to be raised a little to avoid draining of rainwater through manholes.
4. The cost of RWH structures may vary from place to place. The availability of existing structures like wells/tanks and use of locally available material can reduce the cost.
5. Grill/mesh has to be fixed at the entrance / mouth of the rainwater pipe in the terrace to filter large particles such as leaves etc.
6. Avoid pavements around the building since unpaved surfaces have more percolation rate. If paving of open space is unavoidable, use perforated pavement blocks to allow percolation of rainwater.
7. For effective recharge of rainwater, combination of different structures may be used as per the site requirement viz. area of the building and soil conditions.
8. All recharge structures must be properly maintained for effective recharge throughout the year. Maintenance is very easy and simple.
9. Avoid polluted water for recharge which will spoil the ground water aquifer.

Frequently Asked Questions

1. **How Rainwater Harvesting is beneficial to me ?**
Water level will considerably increase by doing Rainwater Harvesting in Open Well / Borewell.

2. Can Rainwater be stored and used directly?

Rainwater from the terrace can be collected through the drain pipe, passed through the filter chamber and stored in sumps and used. But to maintain the quality of the water, it is recommended to add Bleaching Powder.

3. How to improve the water table in clay soil areas ?

Rainwater can be passed to a Pit which has been made up to the level of the clay soil and filled up with pebbles & sand. Where the depth of the clay is more, then it is recommended to install borehole inside the percolation pit filled up with pebbles.

4. Which method to be adopted in hard rock areas ?

Percolation pits can be constructed upto the bottom level of the weathered rock and filled up with pebbles and sand. If the depth of the weathering is more (more than 5m), then a borehole to be made and filled with pebbles & sand for percolation of rainwater.

5. What will be the approximate expenses for installing rain water harvesting structures ?

- For an open well in an individual house, the approximate cost will be Rs. 1,500/-
- Using Filter Chamber, it will cost approximately Rs. 2,500/-
- Using pebble beds around the compound wall, it will cost approximately Rs. 5,000/-

TWAD Board Head Office at Chennai and all Chief Engineers / Superintending Engineers of TWAD Board Offices are assisting every individual in installing rainwater harvesting structures and also working towards promoting awareness and providing technical assistance. All are invited to utilise this opportunity to increase the availability of water for use and make the programme a success.

For further details :

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www.twadboard.com / www.aboutrainwaterharvesting.com



(Manual)



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