RAIN H_2O HARVESTING (RWH) "

(1)

INTRODUCTION :- "It is the activity of collection of rain H_2O for further use. - - - - - -

→ Rain H_2O can be stored for direct use or can be recharged into the ground H_2O.

→ Through rain H_2O harvesting thousands of litres of H_2O can be collected / saved every year.

→ Rain H_2O is renewable source (cost free). It is conserved by harvesting & managing this natural resource by artificially recharging system.

↓

Any man-made scheme or facility that adds H_2O to aquifers may be considered to be an artificial recharge system

→ Rain H_2O Harvesting is essential becoz :-

1) Surface H_2O is inadequate to meet our demand & we have to depend on ground H_2O.

2) Due to rapid urbanization, infiltration of rain H_2O into the sub-soil has decreased drastically & recharging of ground H_2O has diminished.

→ Reasons of shortage of H_2O :-

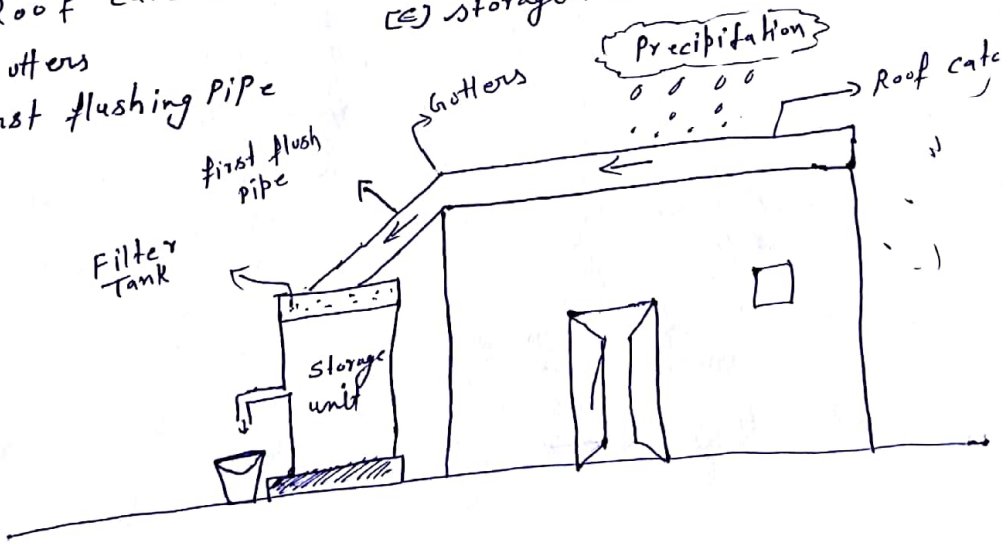
1) Population ↑ — (2) Industrialization (3) Urbanization

4) In places where irrigation based crops are cultivated through ground H_2O.

5) Deforestation 6) ↓ in surface area of lakes etc.

➔ A Typical roof top rain H_2O harvesting system comprises of :-

[A] Roof catchment
[B] Gutters
[C] First flushing Pipe
[D] Filter unit
[E] storage tank



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[a] Roof catchment :⇒ The roof of the house is used as the catchment for collecting rain H_2O. The roofs for rain H_2O harvesting are made of Iron sheet, asbestos sheet, tiles or concrete materials.

[b] Gutters :⇒ are the channels fixed to the edges of roof all around to collect & transport the rain H_2O from the roof. Gutters can be made in semi-circular & rectangular shape with cement Pipe, Pvc Pipes, bamboos etc.

[c] First flush Pipe :⇒ Dust & dirt are collected on the roof during non rainy periods. A first Flush system arrangement is made to avoid the entering of unwanted materials into the filter media & storage tank. This is a simple manually operated arrangement or semi-automatic system with a valve below the T- junction.

[d] Filter unit :⇒ It is a container or chamber filled with filter media such as coarse sand, charcoal, coconut fiber, Pebbles & gravels to Remove dust & dirt from H_2O that enters the tank.
→ It is placed over the storage tank or separately.

[E] Storage Tank :⇒ It is used to store the H_2O that is collected from roof through filter. It can be placed either above or below the ground depending upon the availability of space.

These Tanks are

↓ Small Scale H_2O storage Tank
eg⇒ plastic, buckets, jerrycans, cement or ceramic jars, drums.

↓ Large Scale water storage tank.
eg⇒ cylindrical/rectangular/square in-shape with ferro cement or plain cement concrete may be used.

→ The tank is provided with a cover on the top to avoid the contamination of H_2O from external sources. Disinfection is carried out at regular intervals.

⇒ Benefits of rain H_2O Harvesting :⇒

1) Increase water level
2) Helps in improving H_2O quality of ground H_2O
3) Improves overall floral system
4) Reduces the loss of H_2O from top layer.
5) minimizes the flooding on roads.