LOVELY PROFESSIONAL UNIVERSITY

PLAN FOR RAINWATER HARVESTING IN YOUR NEIGHBORHOOD

BATCH - D2208 - CHE110

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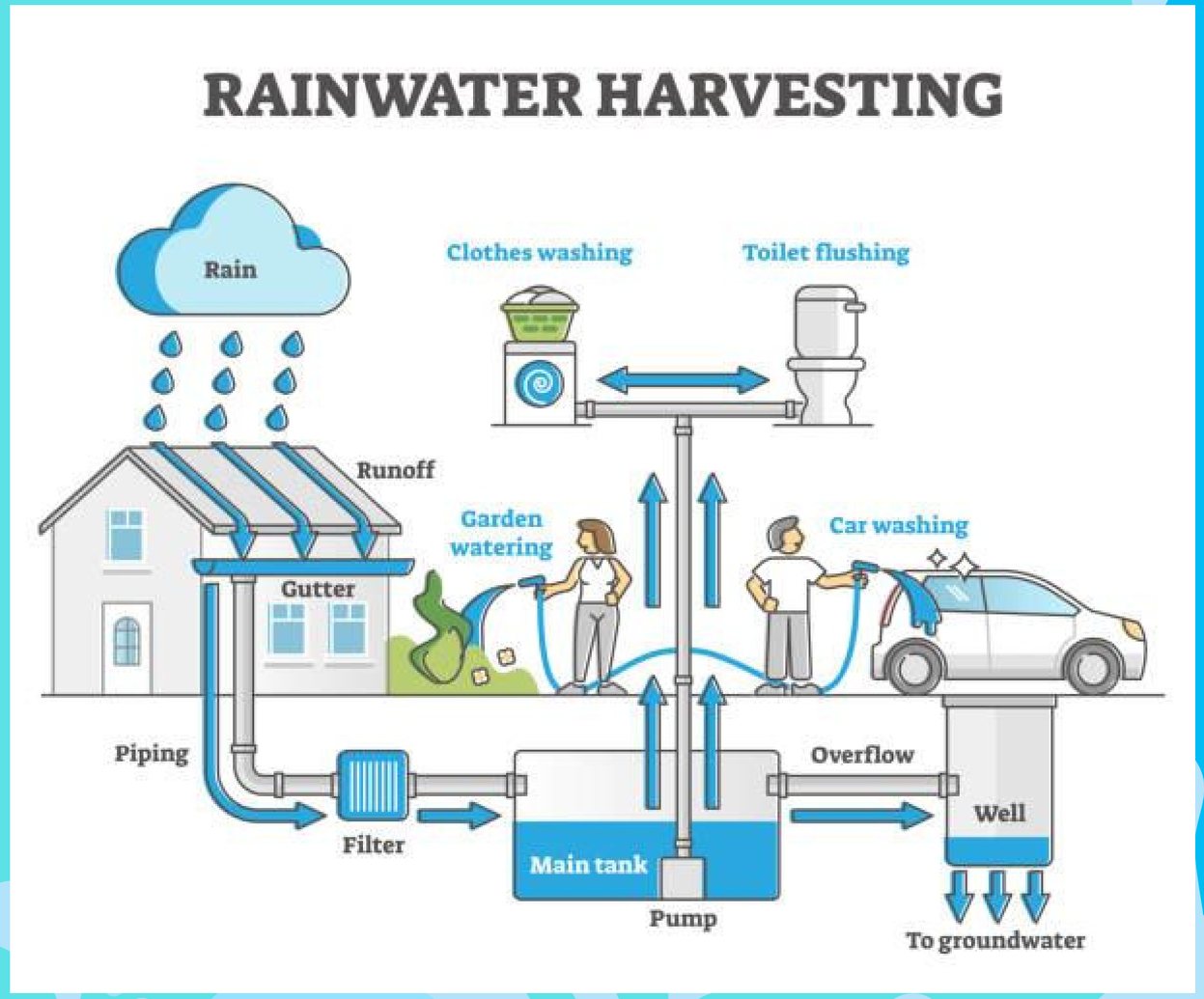
WHAT IS RAINWATER HARVESTING

Rain water harvesting is the collection and storage of rain, rather than allowing it to run off . Rainwater is collected from a roof-like surface and redirected to a tank, well, shaft, or borehole .



WHY IS IT IMPORTANT?

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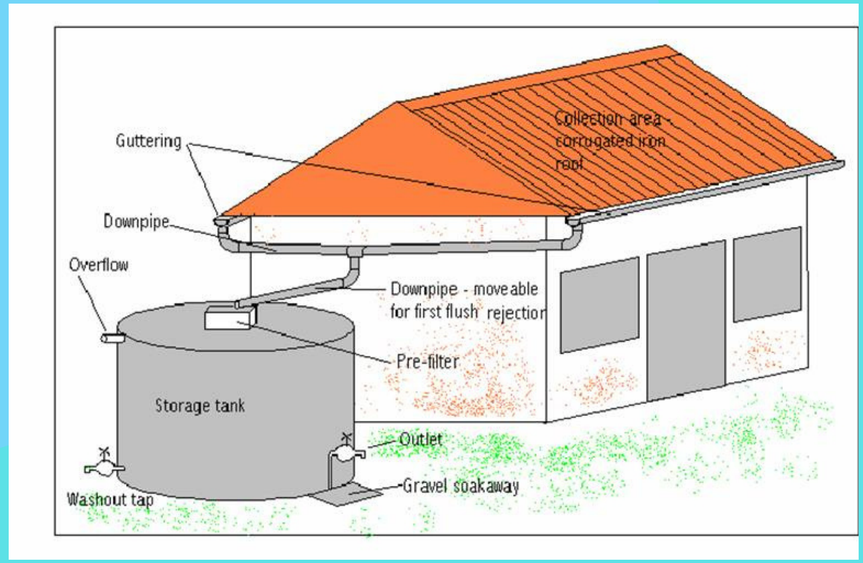
- We all know the fact that in these days world is suffering from the climate change and global warming, India in not behind that, In India we saw a variations in our Seasonal Change, rainy season comes very unpredictable and also the quantity of rain is not enough for fulfilling our day to day needs , so we need some kind of methodology for these problems...

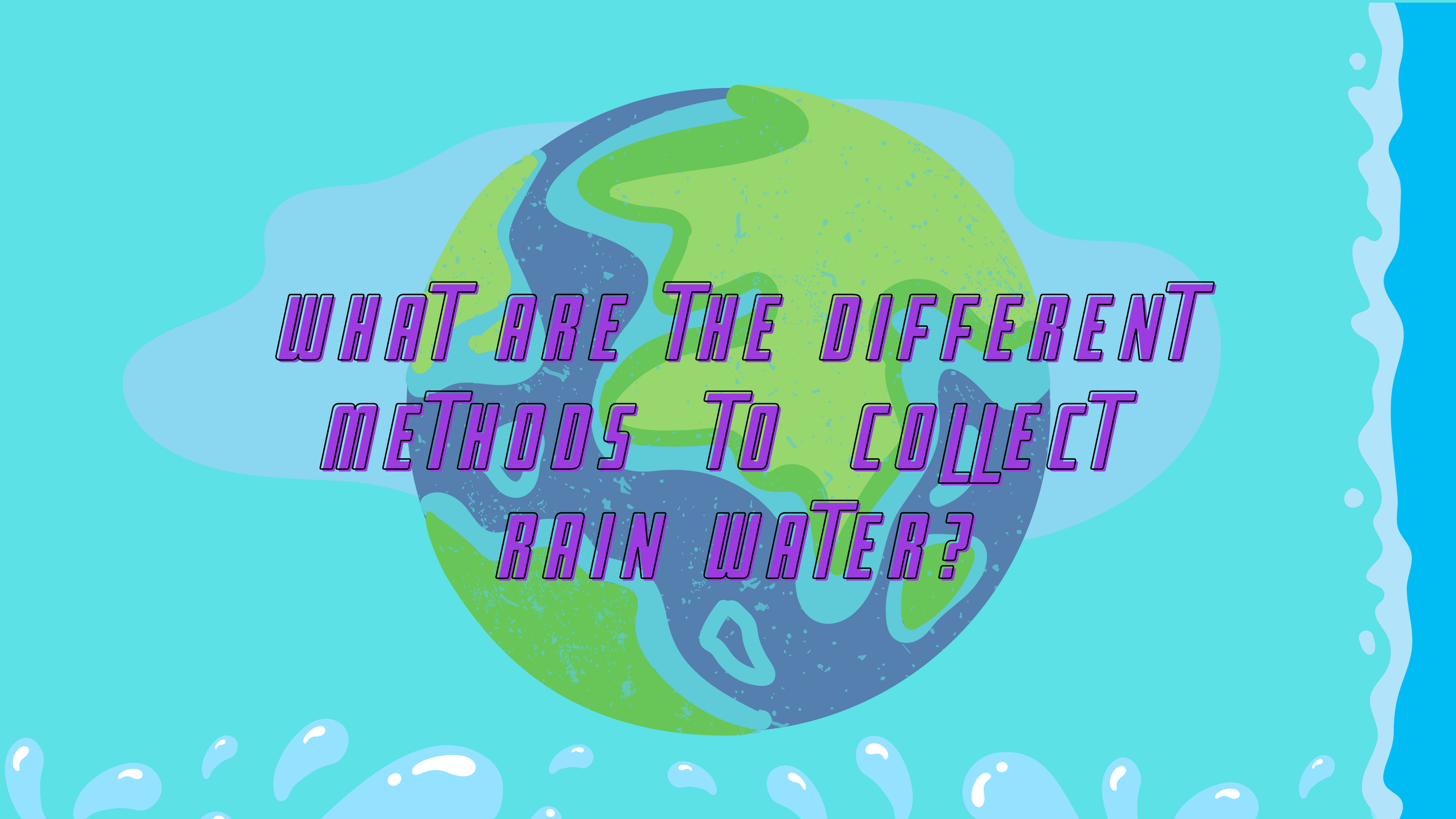
- The harvesting of rainwater simply involves the collection of water from surfaces on which rain falls, and subsequently storing this water for later use.

- Normally water is collected from the roofs of buildings and stored in rainwater tanks.

OBJECTIVES OF RAINWATER HARVESTING

- To meet the increasing demand of water.
- To reduce the run-off which chokes the drains?
- To avoid the flooding of roads.
- To raise the underground water table.
- To reduce groundwater pollution.
- To reduce soils erosion.
- To reduce Water demand.




WHAT ARE THE DIFFERENT METHODS TO COLLECT RAIN WATER?

RAIN BARRELS

This method is the most common and one that many people are familiar with. This involves installing a barrel at a gutter downspout to collect rainwater. The actual barrel may be a recycled barrel or a new commercially available rain barrel.

"DRY" SYSTEM

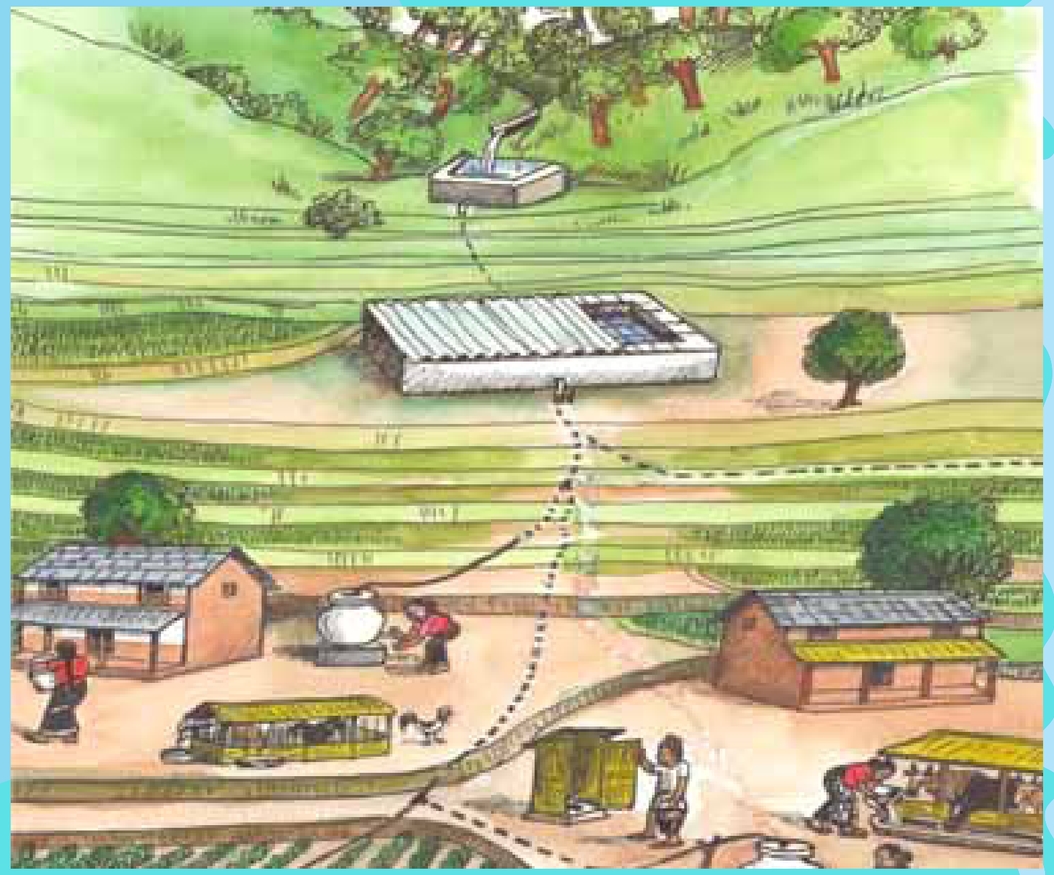
This method is a variation of a rain barrel set-up, but it involves a larger storage volume. Essentially, the collection pipe “drys” after each rain event since it empties directly into the top of the tank.

"WET" SYSTEM

This method involves locating the collection pipes underground in order to connect multiple downspouts from different gutters. The rainwater will fill the underground piping and the water will rise in the vertical pipes until it spills into the tank. The downspouts and underground collection piping must have water-tight connections. The elevation of the tank inlet must be below the lowest gutter on the house

GROUND CATCHMENT SYSTEM

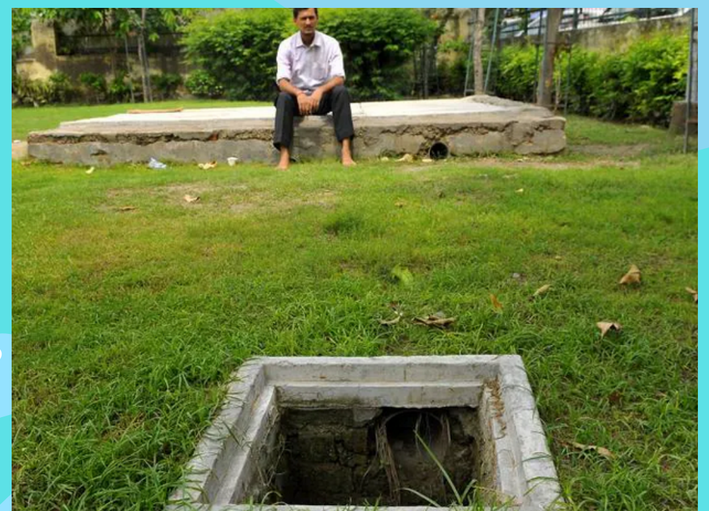
This method is a variation of a rain barrel set-up, but it involves a larger storage volume. Essentially, the collection pipe “drys” after each rain event since it empties directly into the top of the tank.

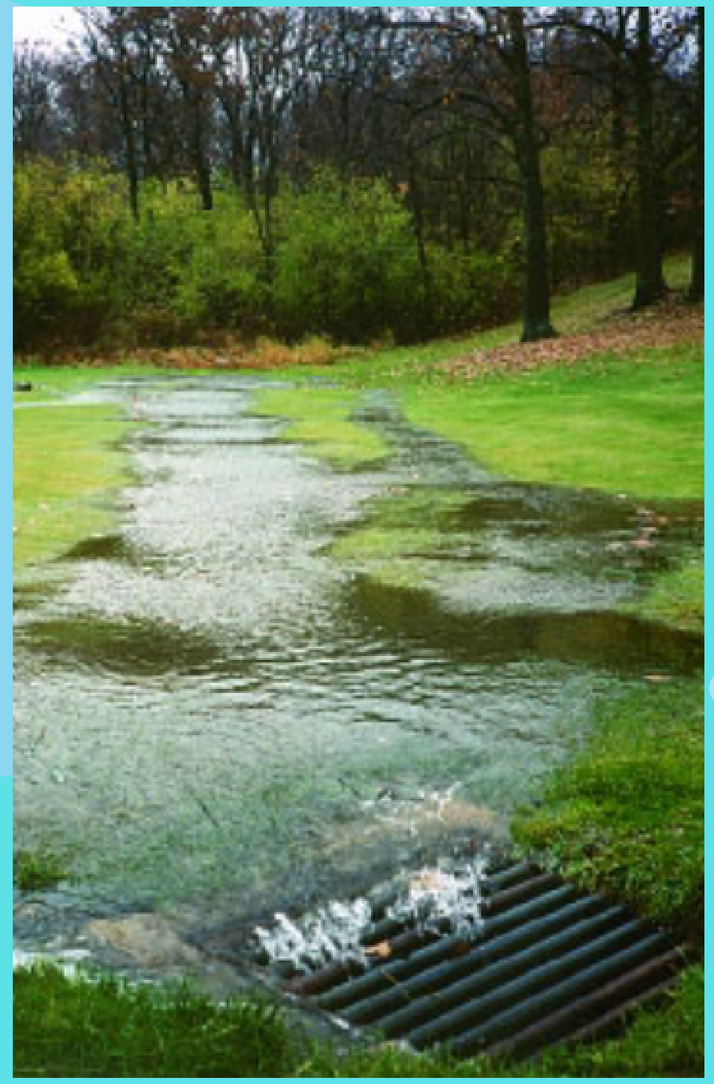


THERE ARE TWO MAJOR TECHNIQUES OF RAINWATER HARVESTING

SURFACE RUNOFF HARVESTING

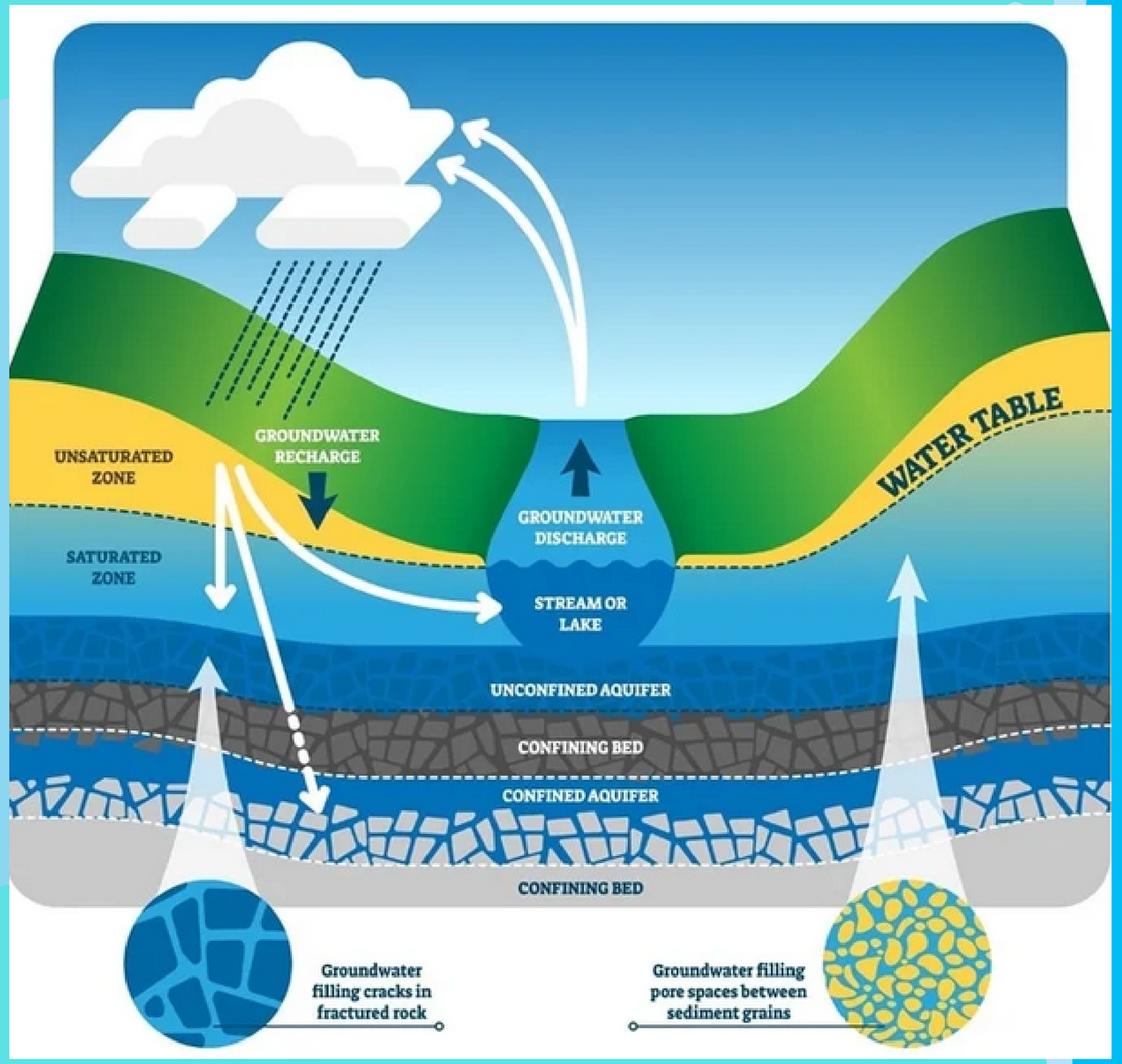
In this method, rainwater flows away as surface runoff and can be stored for future use. Surface water can be stored by diverting the flow of small creeks and streams into reservoirs on the surface or underground. It can provide water for farming, for cattle and also for general domestic use. Surface runoff harvesting is most suitable in urban areas.





GROUNDWATER RECHARGE

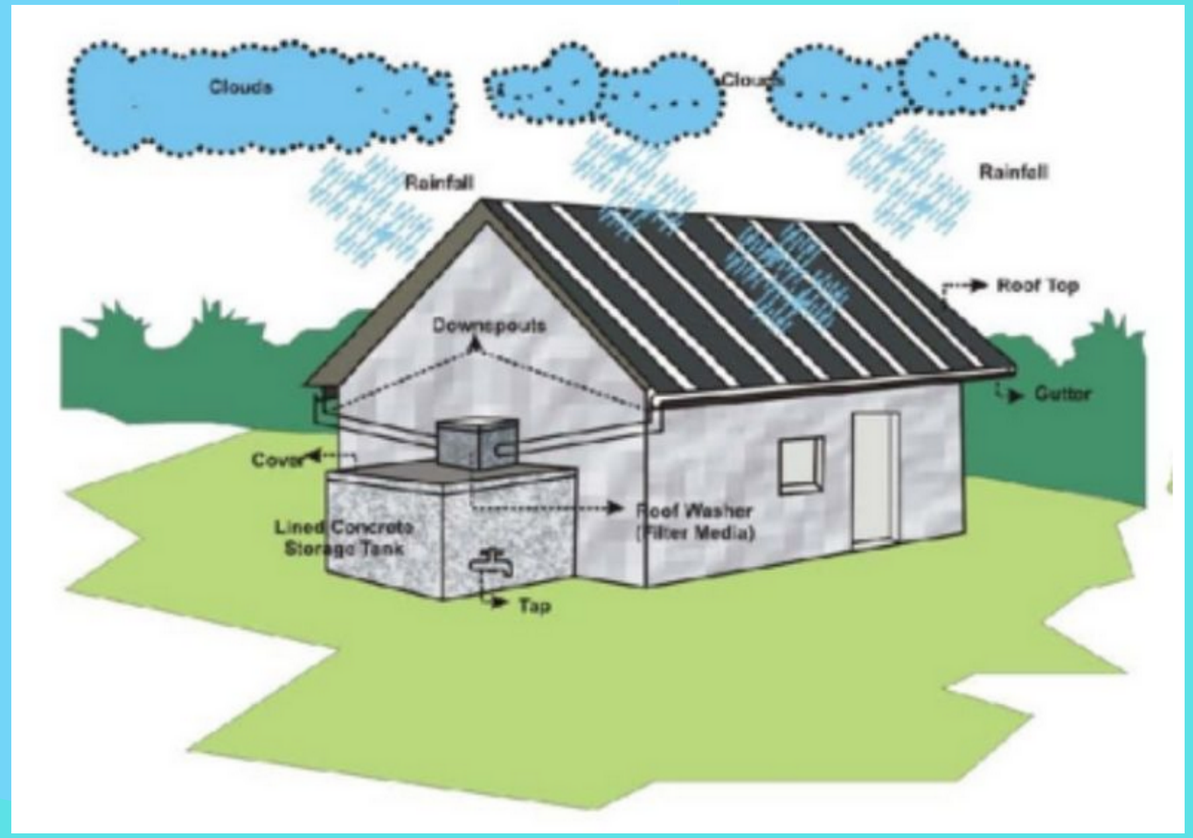
Groundwater recharge is a hydrologic process where water moves downward from surface water to groundwater. Recharge is the primary method through which water enters an aquifer. The aquifer also serves as a distribution system. The surplus rainwater can then be used to recharge groundwater aquifer through artificial recharge techniques.



How do I create a rainwater collection system ?

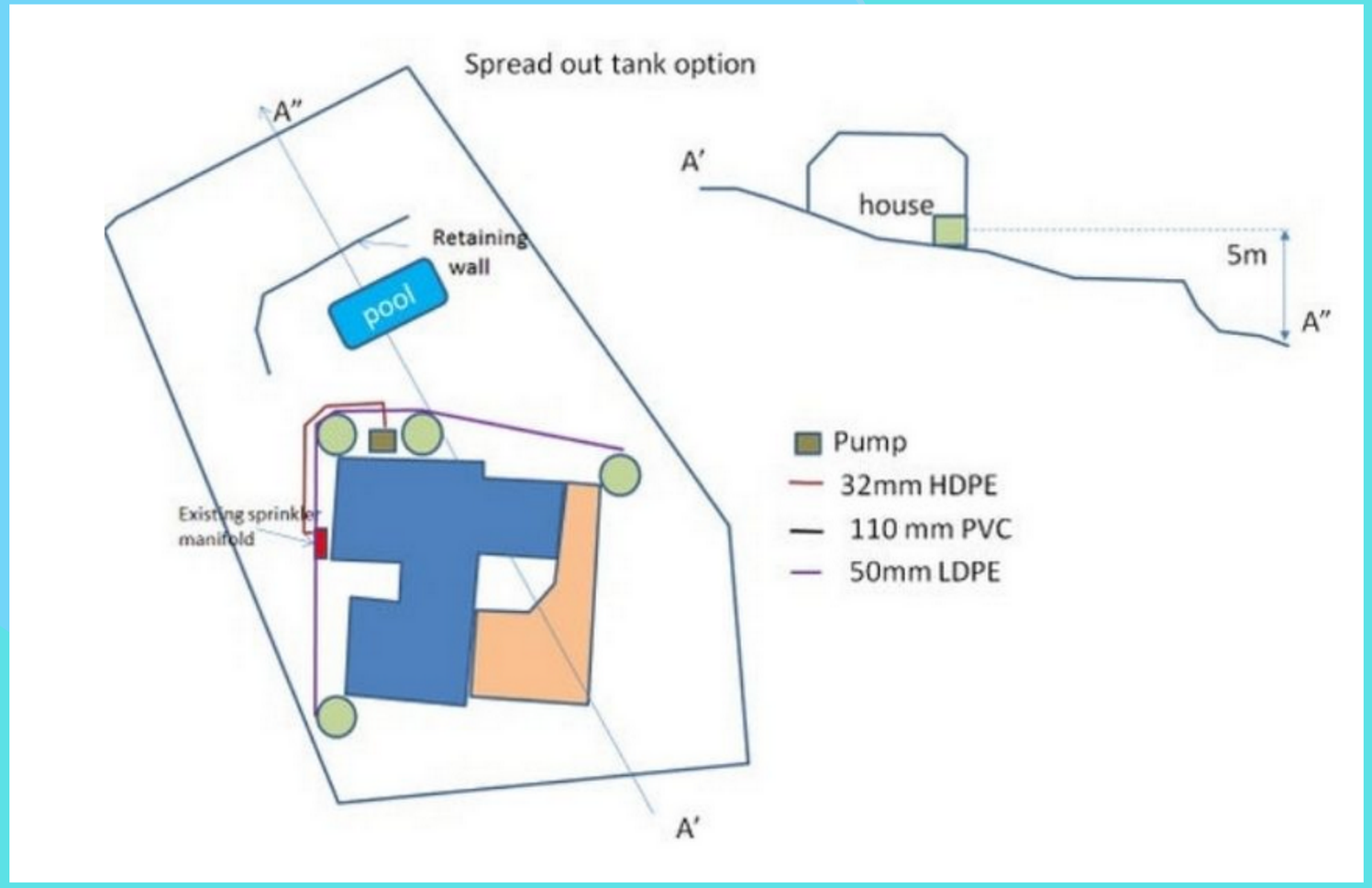
Step 1: Determine your rainwater harvesting potential

The rainwater harvesting potential is the amount of rainfall which could be collected in the given area. It is calculated as the surface area you have available to collect the rainwater multiplied by your annual precipitation.



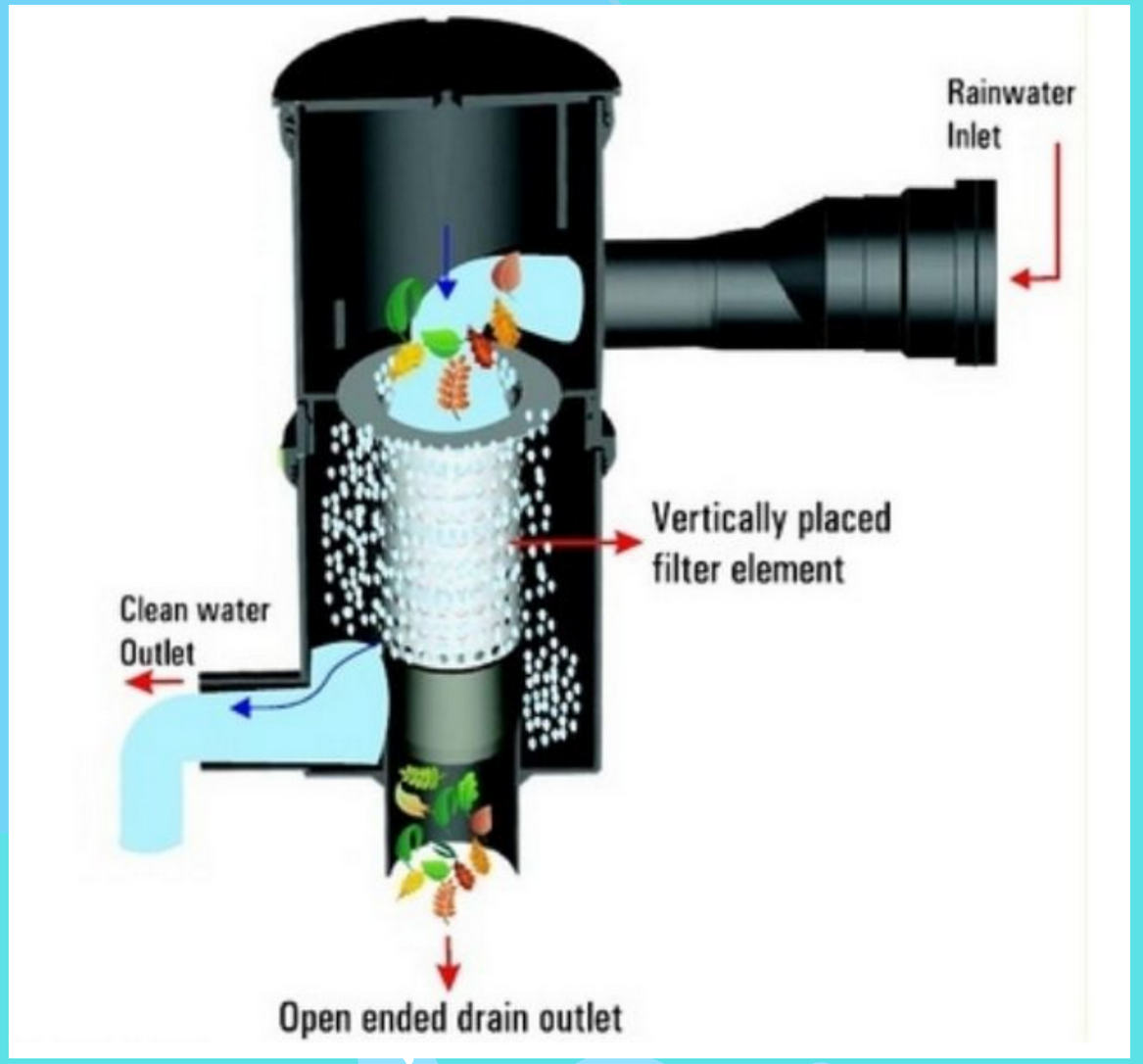
Step 2: Determining The Layout

The layout and the location of the tank, pipelines are determined in such a way as to maximize the use of collection surfaces.



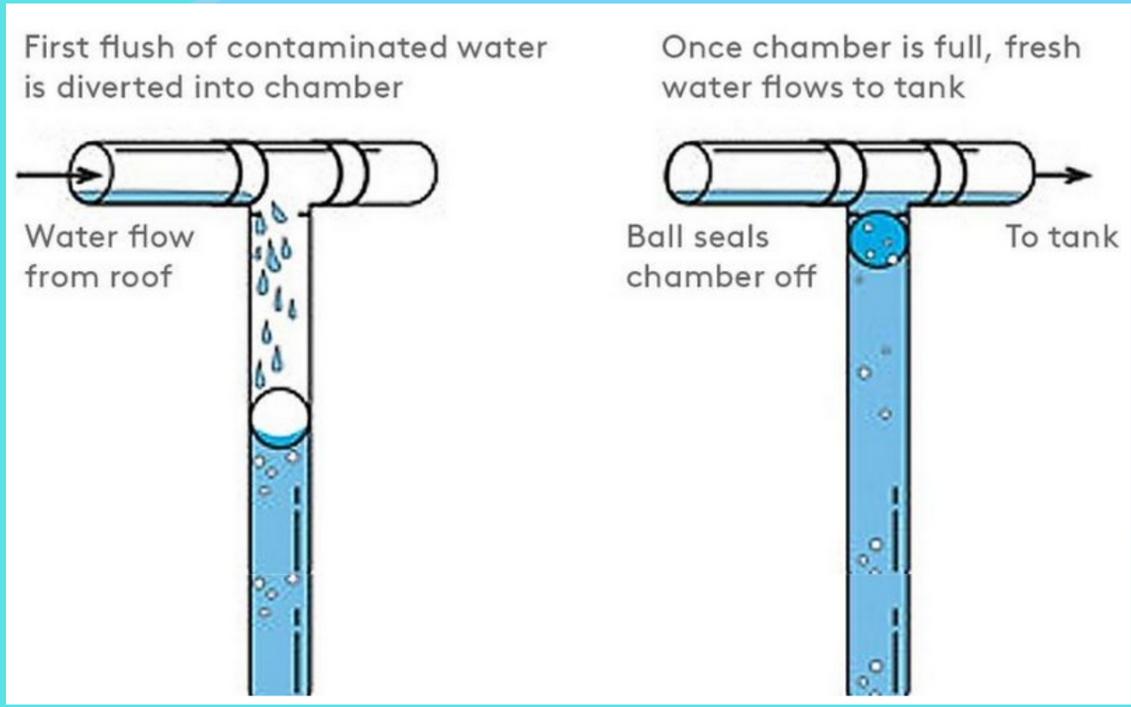
Step 3: Setting up The Storage

The rainwater collected from the roof of the building is diverted to a storage tank. The storage tank has to be designed according to water requirements, rainfall, and catchment availability.



Step 4: decide on the features in the system

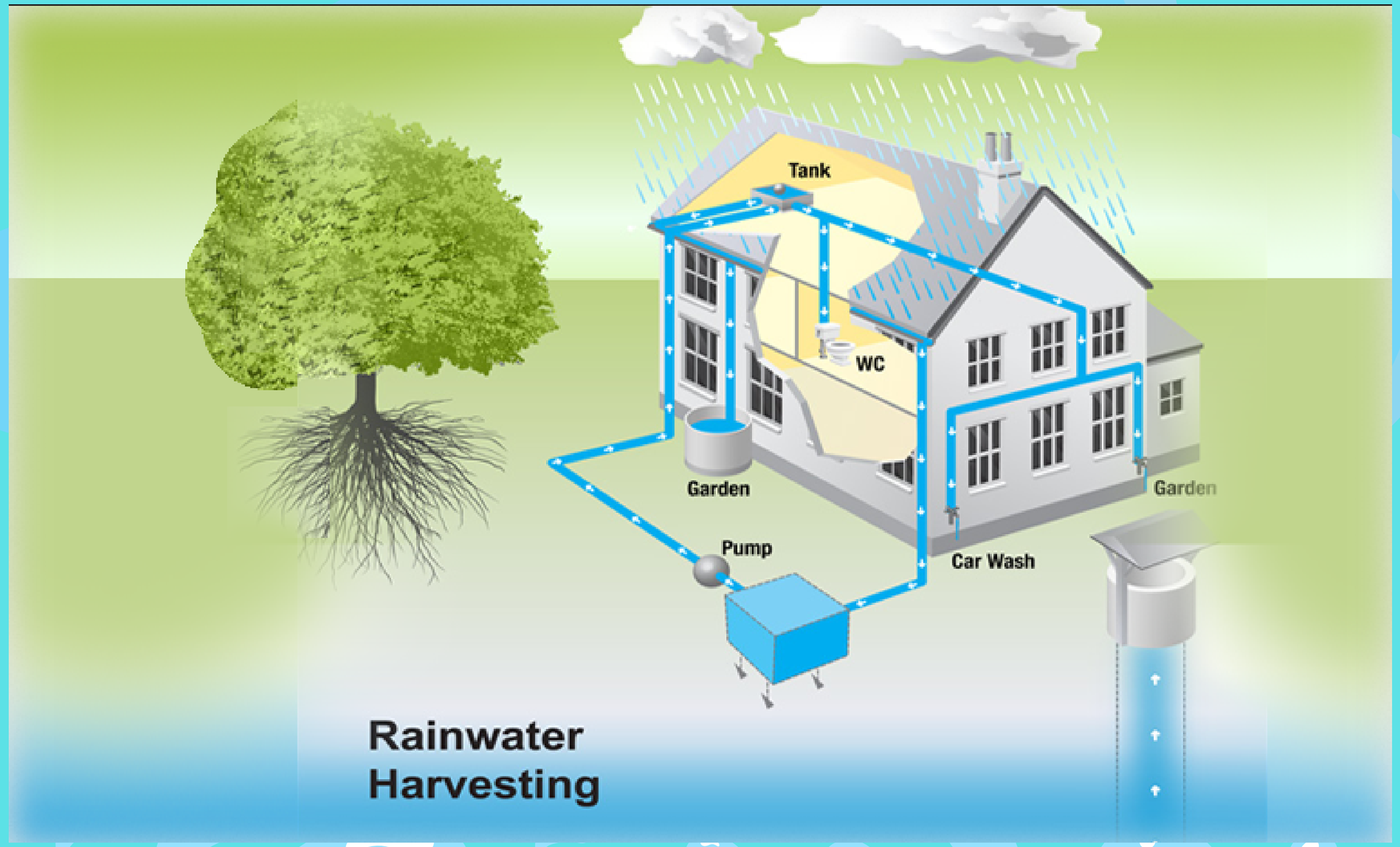
- **First Flush Diverters**



- **Filter or UV filter**

Step 5: Installing The pipes and Tank

FINAL



RAIN WATER HARVESTING IN LPU

RAIN WATER HARVESTING SINCE ANCIENT TIME

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Thank
You