

The rainbarrel is a very simple way to begin with rainwater harvesting

Rain barrel serves as a storage unit for rooftop rainwater.

It can collect a substantial amount of rainwater.

In Bangalore for example, where there is an annual rainfall of 900 mm and 60 rainy days, 500 liters barrel collecting water from a 50 m² roof area can collect nearly 23 000 liters of water every year. Similarly, a 1000 liters barrel can collect nearly 35 000 liters of water every year.

Financially, 500 liters and 1000 liters rain barrels are easily available. Installing a 500 liters barrel should cost Rs 3000. For a 1000 liters barrel it should cost Rs 4000.



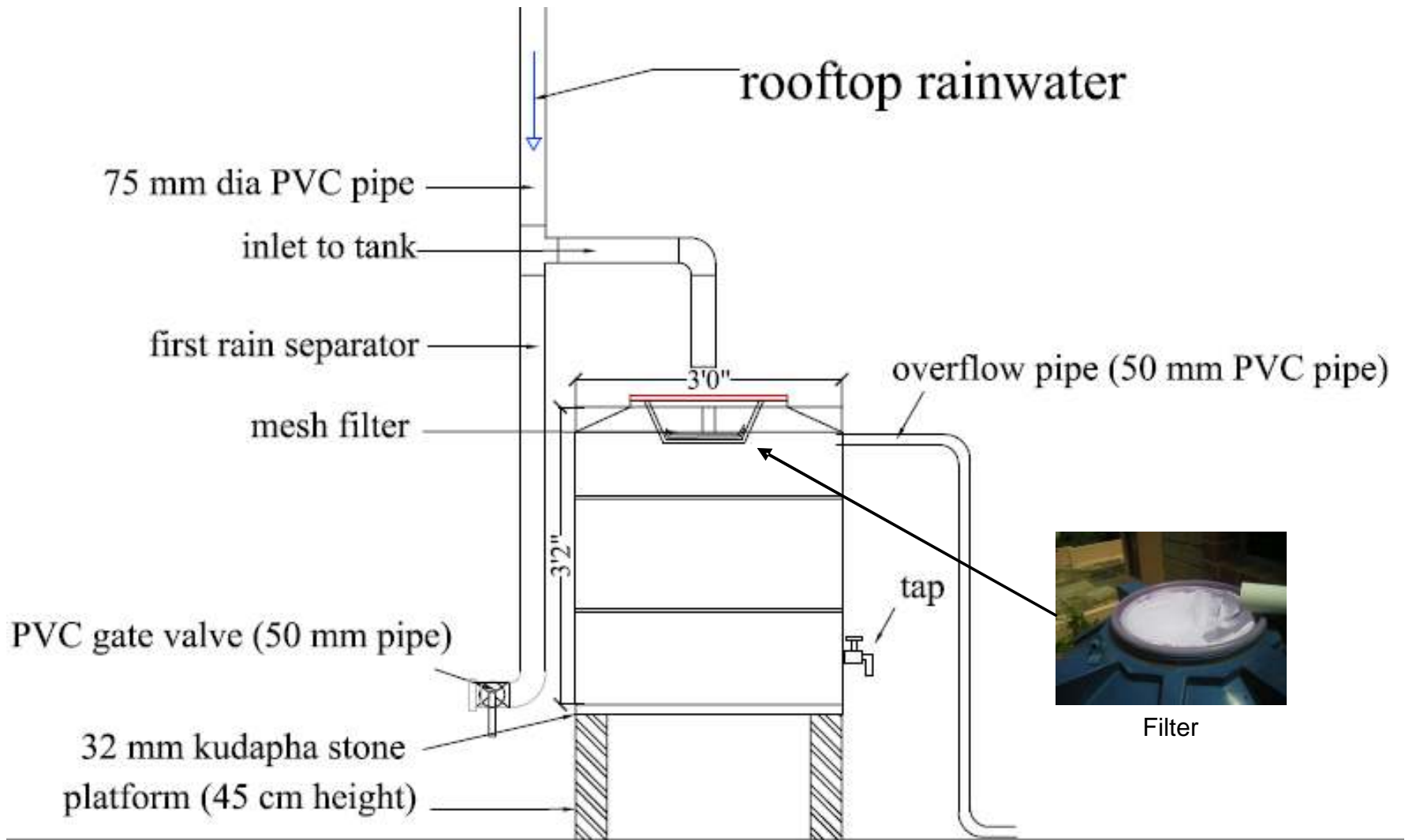
A 500 liters rainbarrel at work on a roof

In this topic, you will learn how to install a rain barrel !

Materials Required

- PVC pipes 75 mm dia for roof area upto 1000 m² for down pipes. In case of sloped roof, 150 mm dia pipe is cut horizontally to act as a gutter ; gutters can also be of aluminium, galvanized iron, or stainless steel.
- Clamps to be placed at 1 m c/c : for holding the gutter in place ; numbers depend on the length of the gutter and down pipe.
- Screws/ nails for fixing the clamps.
- End cap for sealing off the other end of gutter so that water does not flow out from the wrong end.
- Elbows for joining the pipes at right angles ; numbers depend on the design
- Tee ; joint for connecting the down pipe to first rain separator on one end and water inlet into the barrel on the other end
- First rain separator with PVC gate valve. First rain separator allows the first rain water which usually carries a lot of suspended particles like leaves, dust, etc. to flow off without letting it into the barrel.
- Small perforated aluminum basket (which sits securely in the mouth of the Rain barrel) with two layers of sponge; to act as filter
- PVC drum ; 500 liters or 1000 liters depending on roof area: for storing rain water
- Tap at the bottom of the barrel for allowing drawl of water in a bucket or by attaching a hose pipe
- Platform raised at a height of around 45 cm from the ground : for keeping the rain barrel

Harvesting the rain with a rain barrel



Site Specification

Should have a minimum of 3'3" x 3'3" for 500 liter drum and 4'0" x 4'0" for 1000 Liters.

Technique – the roof

Lead all the water falling on the roof to one or two points in the roof. This can be done during the time of construction by providing a slope in the required direction. In already constructed houses, connect the existing pipes to the rain barrel.



Flat roof



Hole for water



Connecting vertical pipes

Maintenance : Make sure that just before the first monsoon showers the roof is swept clean. During continuous rainy spell it is advisable to clean the roof once a week.

Technique – the pipes

In case of sloped roof, fix a gutter (horizontal pipe) along the edges of the roof using clamps. The gutter can be connected to the down pipe using an elbow junction. Seal the other end of the gutter using end cap.



Gutter for sloped roof



Elbow junction



End cap

Technique – the first rain separator

Water from the first showers should not be harvested; it should be allowed to flow out through a first rain separator pipe.

Using tee junction at the end of down pipe, connect one end of the tee to the first rain separator and the other end to the inlet of the barrel.



Tee junction



First rain separator with gate valve

Technique – the platform

Construct a platform at a minimum of 45 cm above the ground. This allows you to get some water directly from the tap and keep the bottom of the barrel clean.



Rain barrel in an industry

Technique – PVC barrel

Place the PVC barrel on top of the platform.



Examples of PVC barrels

Technique – PVC barrel



Examples of PVC barrels

Technique

You have to filter the water before storage. It can be anything that will prevent the solid particles to enter in the barrel.

For example, you can place a perforated aluminum basket with two layers of sponge or a perforated plastic bottle with a mesh at the mouth of the barrel.



Aluminium bottle and sponge



Plastic bottle and mesh

Maintenance : always keep the filters clean

What else is possible



Using a hosepipe, the tap can be connected to the borewell or sump tank.



Overflows from rain barrels can also be used for recharging the groundwater

Water quality

If all the hygien precautions have been taken (roof and gutter clean, efficient filter) , this water is generally fit for drinking. To ensure its quality, you will have to do some bacteriological test.



H₂S strip test. If the water doesn't turn black after 36 hours in the sun, it is drinkable

Rain barrels at work



In a house



In a industry



In a low income area

Rainbarrels for polyhouses

