

Water tank options

Next examples of tanks are mainly taken from Akvo.org

Brick tanks and wire cement tanks

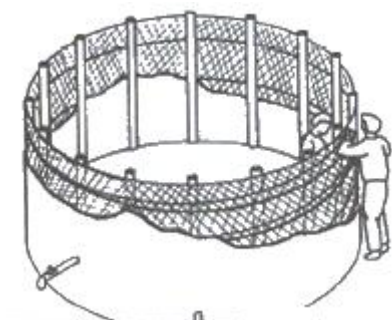


Brick cement tanks are a low cost option for storing water gained through water harvesting. In general it is cheaper than ferro-cement tanks and easier to build. The area should be suitable for [rainwater harvesting](#). Volumes can be 0.5 to 30 m³. Brick cement tanks are constructed by placing an upright ring of bricks in a circle, with 3 rings of steel wire tightened around them. If the tank diameter is bigger than 2 meters more rings are needed. A second, third and fourth ring of bricks are added and suitably tightened. Cement is then applied on the inside and outside of the brick walls and to cover the bottom. A metal or PVC outlet pipe can be installed at the bottom. Once the cement has been applied, the tank needs to be covered with paper or plastic and kept wet for 7 days to cure the cement. Another curing option is to fill it up after the second day of installation.

Materials consist of (local produced) bricks (or blocks of hard rock), cement and steel wire. Approximately 1 bag of 50 kg cement per m³ tank volume. The bigger the volume of the tank, the lower the amount of materials (and thus costs) per m³ tank volume.

Bricks are used to make smaller tanks of 0.5-3 m³ and natural stones or cement bricks are used for tanks of 3 to 120 m³. Leaks are repaired with cement.

Ferro cement tank



A Ferro Cement tank consists of a core of chicken weir along poles, which is plastered at two sides with concrete mortar.

Traditional concrete tanks



Concrete tanks use iron bars in foundation, walls and roof. The roof can be flat or inclined and needs a vent pipe. Wider tanks need a support pillar in the centre.

Most countries have remained with the standard designs developed during colonial times. They are commonly more expensive than alternative designs.

Poly tanks



The advantage of poly tanks is that they are pre-fab and need little additional construction work. They need to have a stable basis and preferably they are covered with a roof (galvanized sheets or thatched with grass). They can be put in series. Try to close all openings. Lifetime is less than 10 years and is heavenly dependent on exposure to sun rays. There exist conical models in which the separate roof/cover provides some strength. The advantage is that their transport is cheaper (as they fit together).

In some countries, there are sub-surface tanks, consisting of two halves that are put together.

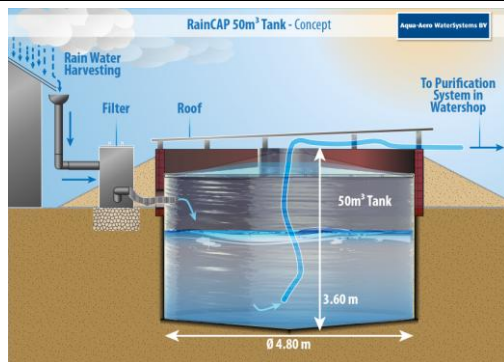
Welded sheet tanks (example Bucon)



The outer part of these pre-fab tanks consist of iron sheets, that are put together with bolts and nuts. The inner side consists of a plastic lining with openings for the wash out and outlet pipes. Also the roof is from pre-fab sheets. The base needs to be stable.

This type is common at industrial plants and in agriculture. Advantage is the pre-fab and limited volume, reducing transport costs. Disadvantages are the price of the plastic foil, the costs of additional items and the required care in cleaning and maintenance.

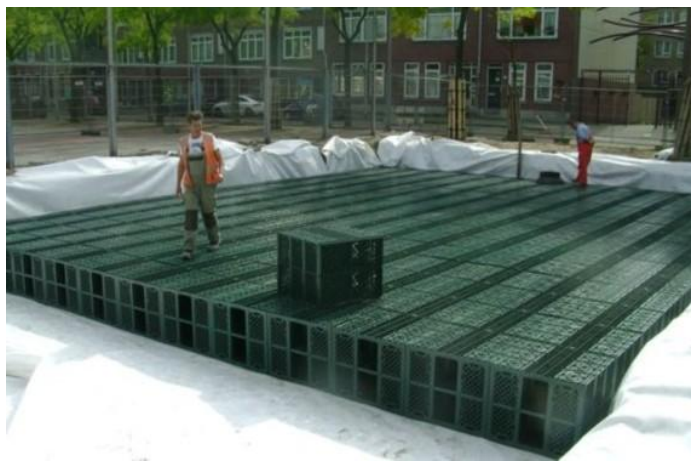
Foil lined subsurface tanks (example of RainCap of Aqua Aero Systems)



The Rain Collection And Purification system (RainCAP) is a foil sheet, put into a dug out or in an existing tank. The sheet is made of a very sturdy and durable plastic. The foil tank is placed in the ground and used to collect/capture up to 50 m3 of rainwater. From there the water is pumped up, purified when needed and distributed as drinking water to the consumers.

The RainCap system is easy to transport, install and maintain. It can be installed in combination with the UV WaterBox. The tank can be cleaned regularly and removed when needed.

Crates based subsurface tanks (example of Wavin)



The modular crates, surrounded by strong foil, are meant to provide a solid subsurface below an area that can be used for a second purpose. The water tank can be used to store the water or to create a buffer for slower infiltration into the ground.

Care should be taken to keep all openings closed. The water entrance can be kept closed with a siphon/water guard..