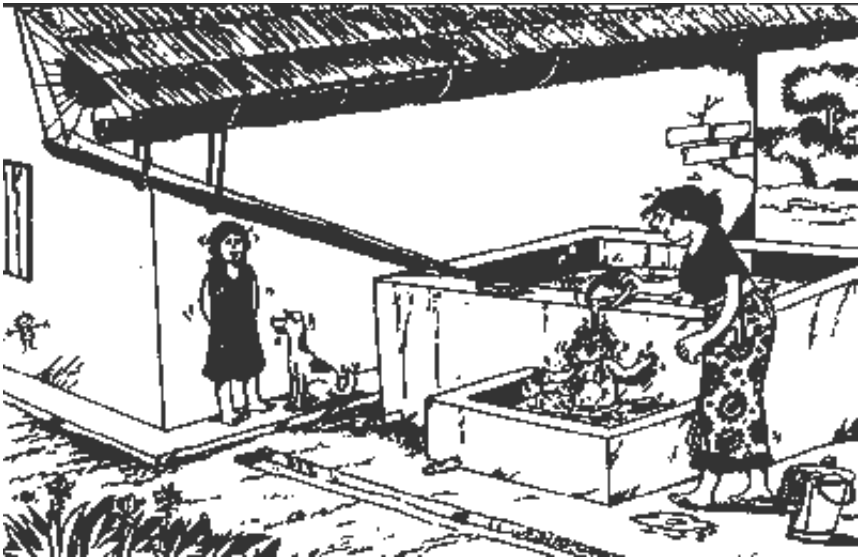
Case study 3

3.0m^3 brick built storage tank, Sri Lanka

Background

This case study is an example of local initiative in design and manufacture in DRWH. The tank in question was constructed in the village of Ahaspokuna, near Kandy, in the highlands area of Sri Lanka. The tank was built 10 years ago by a local mason for the Rajasomasari family and has since been copied so that there are now several of these tanks in the area. The setting is a high rainfall area (almost 3000mm annually) with a bimodal rainfall distribution. There is a dry season which lasts a maximum of 4 months. The Rajasomasari family fit the low to middle income range and their dwelling is a single storey bungalow with an electricity supply, latrine and shower room.



Technical detail

The tank

The tank is a simple brick built rectangular structure which has been cement rendered both inside and outside and sits at ground level. The tank has a concrete base. The cover is a removable wooden frame covered with a fine nylon mesh which filters out all larger debris such as leaves and twigs. The

dimensions of the tank are 1.5 x 1.5 x 1.5m, giving a usable storage capacity of around $3m^3$. The tank has an overflow and washout fitted. Small fish are kept in the tank, which helps to prevent algae growth and build up of organic materials. Water is extracted using a small bucket there is a small removable section in the nylon mesh. The tank is usually cleaned when it is empty. The owner mentioned that the tank is very easy to clean because the top of the walls are only at chest height.

Click on text to see photos

Figure 1 photo Water falling into tank

Figure 2 photo Tank and family

Catchment

The catchment area is the zinc sheet roofing of the house which totals about $90m^2$. It is a pitched roof with a small gradient, say about 10^o. The guttering

is, as is commonly found in Sri Lanka, S-Lon brand, U-channel, factory produced guttering as used for conventional rainwater protection /removal from houses. The cost of the guttering was approximately Rs. 5,000 (about 75.00). It is interesting to note that as much has been spent on the guttering as on the tank. Fittings for the guttering are also factory manufactured. The downpipe empties straight into the tank through the nylon mesh and can be diverted away from the tank as a first flush mechanism.

Figure 3 photo Roof and guttering

Water uses

The per capita consumption of water is in the region of 30 litres per day. They have a family of four people. The water is used for all domestic applications except drinking water from the groundwater pump in the nearby valley is used for this purpose. The family is unsure of the cleanliness of the harvested water. The water in the tank lasts only about 15 days in the dry season, which is not very satisfactory in the eyes of the owner who would prefer a bigger tank.

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