

### 3.2m<sup>3</sup> (3200ltr) rainwater tank construction (Sept – Oct 2007)

In cooperation with international NGO 'Ockenden; (UK) and local NGO project partners 'Agriculture Development Action' (ADA) 'Ideas at Work' have worked together on a Kadoorie funded water and sanitation project in Maung Russei in Battambang province, Cambodia.

One of the needs of the area was for improved water source close to the villager's home as ground water is very limited and there are no natural water bodies (such as lakes, rivers or streams) in the project villages. The water available from ponds is also very turbid (cloudy) due to the high clay content of the soil. As such rainwater was considered as one of the best quality water sources available and for tanks to be constructed as part of the project. It is an appropriate method of collecting water from the roofs of houses and to use this for drinking water and cooking purposes.

It was suggested that 3.2m<sup>3</sup> tanks were constructed and that these were based on designs by Dr T. V. Loung's from the publication 'Harvesting the Rain'.

This particular design was considered advantageous because of the potential for the community or households to contribute labor during the construction phase. The uses of cement segments or bricks to make the body of the tank these are made in small moulds and can be easily made by untrained family members. This not only allows family's to contribute but it also reduces skilled staff time and to speed up the productions stage as well.

Training for the construction of the tanks was carried out by Ideas at Work's water and sanitation technical advisor. This was carried out in Kok Kralow village at the Community Based Organizations' (CBO's) office in Maung Russei, Battambang. Both ADA's and the CBO staff were heavily involved with the first tank construction as it was intended that they assist with the construction of 20 more rainwater tanks at houses within the project area.

Below is a photo gallery of the various stages of the tanks construction.

#### Stage 1 - Making the segments



Figure 1 - Preparing for making the cement brick segments (3:1 sand to cement ratio)



Figure 2 – Filling the cement brick moulds

## Stage 2 - Making the Upper cover



Figure 3- Preparing for the top cover



Figure 4 - Adding the cement to the top cover mold

## Stage 3 – Making the tank base



Figure 5 – Checking roundness of 12 bricks on base



Figure 6 - Adding first cement layer to the rock infill



Figure 7 - Fitting wire frame and drain pipe prior to top cement layer

**Stage 4 - Adding the first segments to the base and adding outlet pipe**



**Figure 8 – Checking level of first layer of segments**



**Figure 9 – Starring the outlet tap box**



**Figure 10 - Tap outlet box**

**Stage 5 – Building and rendering the tank**



**Figure 11 - ten layers of bricks completed (2m high x 1.57m diameter)**



**Figure 12 - Detail of the wire ties for the cement bricks**



**Figure 13 - Applying the first layer of render to the inside of the tank**



**Figure 14 - Fitting the top covers**



**Figure 15 - Applying cement render to the outside of the tank**

## Stage 6 -Fitting the gutters and down-pipes



**Figure 16 - Fitting the gutter to the roof**