PRACTICAL ACTION
Technology challenging poverty

RAINWATER HARVESTING IN UGANDA

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Description of the DRIP project.

The basic goal of the DRIP Project is to promote a cheap and effective way of harvesting rainwater as a means of relieving food shortages.

DRIP started in 2005 with the goal of promoting rainwater harvesting as a way of relieving food shortages in sub-Saharan Africa. Increasing uncertainty in the weather patterns for this region meant that crops were failing due to lack of water when in fact there was sufficient rains to maintain crop growth, it was just that it was not happening during the right part of the crop growing cycle. This pattern of failure was having a significant effect on the poorest subsistent farmers who generally grew crops for their own consumption in a kitchen garden located adjacent to their dwelling house that was a grass roofed hut.

The original concept of DRIP was to assist these farmers by building a low cost rainwater harvesting system based upon using the ready made collection system of the grass roof of their hut and a 1500 litre capacity tank built from locally made sun baked bricks skimmed with a waterproofed cement render. This size of the tank would be sufficient to provide enough water to irrigate the kitchen garden. By limiting the use of the tank to irrigation purposes only, the cost of a tank was kept to an absolute minimum based upon a small tank and no expensive filtration system was necessary to provide water fit for human consumption.

It was recognised that to ensure that the limited amount of water that was captured would achieve the goal of food security the water would have to be used in the most effective way possible and only for crop irrigation. To ensure that this was the case horticultural experts from the UK provided education for the local population on how to use the water in the most effective manner and a local Ugandan focal person was employed to ensure that those horticultural techniques were being adopted and that the water was not being used for other purposes as a matter of convenience.

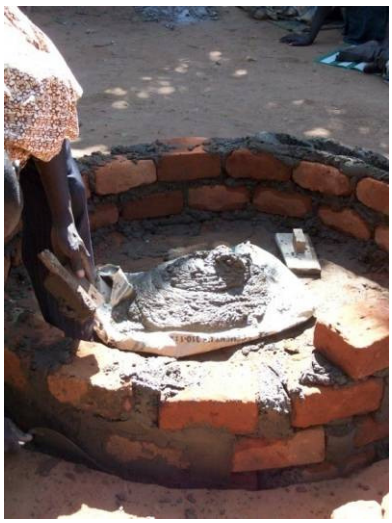
Operation of DRIP in Africa.

DRIP has developed a holistic program for use in any region of subsaharan Africa. This program has been developed in Pallisa, Eastern Uganda, and in the most recent visit comprised:

Construction: To build tanks in one sub-county of Pallisa to provide a solid demonstration of the concept.

Education: To provide education to as many as possible in the concepts of the DRIP rainwater harvesting system and also of water efficient horticulture methods to use the stored water.

Partnership working: To work in partnership with local organisations.



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Design of the systems used.

Tank

The DRIP tank is a fired brick built cylindrical tank standing on a base of approximately 1.5m diameter.
To provide a foundation for the tank, a circle of 1.5m diameter is excavated to a depth of one brick). A level, circular base of bricks on sand is made in the excavation, and the bricks are then interfilled with cement.
From the edge of the base, a circular wall of bricks is built to a height of approximately 1 metre to make a cylinder (dependent on the clearance of the overhanging roof). This is a similar building technique to that used to make a hut.

The outside of the tank is then rendered smooth with cement.
A different cement mix is made using waterproofing agent to render the inside walls and base of the tank.

Gutters

The gutters used are those available from local sources, usually a U-shaped metal gutter with wide wings. This allows for the overlap of a round roof with a straight gutter. One half gutter is used to bridge between the roof and the tank.
To minimise the risk of termites eating wooden supports, the gutters can be suspended from the roof by ropes. This also allows the gutters to be removed quickly in the event of the tank being full, or during the dry season.
Wooden supports can be used and are more solidly positioned. Either they are treated with termite protection or they are replaced when necessary.

Lid

The lid of the tank has to provide a long-lasting cover against sunlight, insects and debris entering the collected water, whilst being removable to allow removal of the water. This is particularly important in areas where malaria is present, as the tanks would otherwise become mosquito breeding centres.
The lid is made from two sheets of corrugated iron, cut to shape with an overlap. One is cemented to the tank, the other is left free to allow it to be lifted off and water removed. It is held down with bricks to prevent it blowing off.

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Outcomes

Construction
The Project achieved the construction of tanks during various visits with the involvement of local people, and a number of volunteers were trained in the construction methods for the tanks.

Education
Training was offered to either people who had had tanks built for them or for people who just had an interest in learning new techniques. The training focused on techniques for either applying water more efficiently to kitchen garden crops, or for conserving water present in the soil. There was a lot of interest generated. The response from the trainees (which demonstrated that the level of horticultural knowledge present in the population varied) supported the UK teams belief that horticulture training is an essential part of DRIP work- particularly the efficient use of water.

The DRIP rally has been held to spread the message of DRIP, involving a march followed by a series of speeches on the system. The speeches covered a wide range of subjects including DRIP. There were also MDD presentations and comments from local dignitaries.

The intention of the Sports Day was to provide a centre for conversation about DRIP, and to bring together people who might not otherwise be reached. This was why netball particularly was chosen, to mobilise a larger female audience.

Benefits
The following letter was received from our main contact in Pallisa

"Thanks so much for thinking about the poor communities in Uganda. As I have been telling you about how DRIP has become a topic everywhere to the extent many people like RDC, CAO, Women groups from different places, Youth groups, HIV/AIDs groups, LC5, LC3, LC2, LC1 and others have come to me/written to me/called me to their offices because some were there when we launched DRIP at PRCs offices. They moved in those areas where we built the tanks & have seen how people have stopped buying vegetables. From the very small kitchen gardens, they have managed to pay school fees for their children. There is even a lady who bought land worth 1,000,000/= from those very garden earnings, so they are asking me for help for the poor communities, for AIDs victims, the Youth who left school and have nothing to do etc….."

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DRIP is a small team of volunteers, based near Liverpool in the UK. The team that went out in 2006 and 2007 were three people, with varying backgrounds and skills- including engineering, chemistry and projects. The team funded the first trip themselves (flights, transport, accommodation, food, security etc). with some small donations made for specific items to be provided. In 2007 the same team went again, this time with funds raised specifically for purchasing the systems and providing some additional projects- the team again paid for all their own expenses.

This document was written by Andrew Herod of DRIP Uganda in February 2009.

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