The Schools Ecological Sanitation Programme
2. Building an Arborloo

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Every family needs a toilet!

Why not teach the method at school!

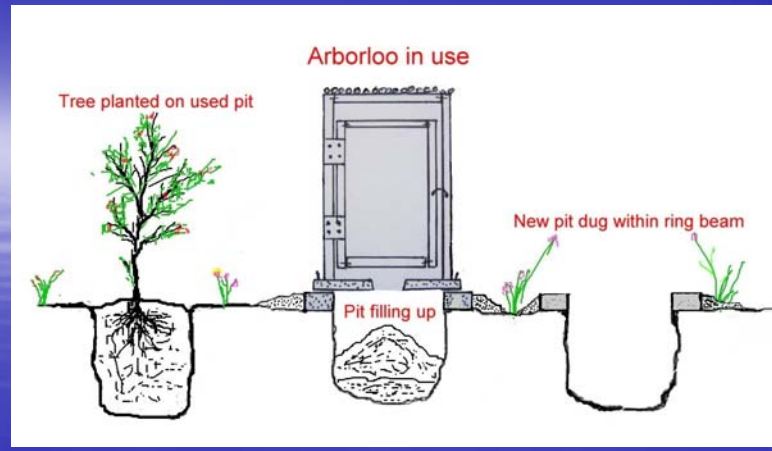
Simple ecological toilets which can be improved to VIP toilets can be made easily and cheaply if the method is known.

The Arborloo

The Arborloo is the simplest ecological toilet. It is a shallow pit toilet where ash and soil are added to the pit together with excreta. The ash and soil help to reduce fly breeding and odour and also help the excreta to turn into compost in the pit. When the pit is nearly full the parts of the toilet are removed to a new place and the pit is filled with topsoil.

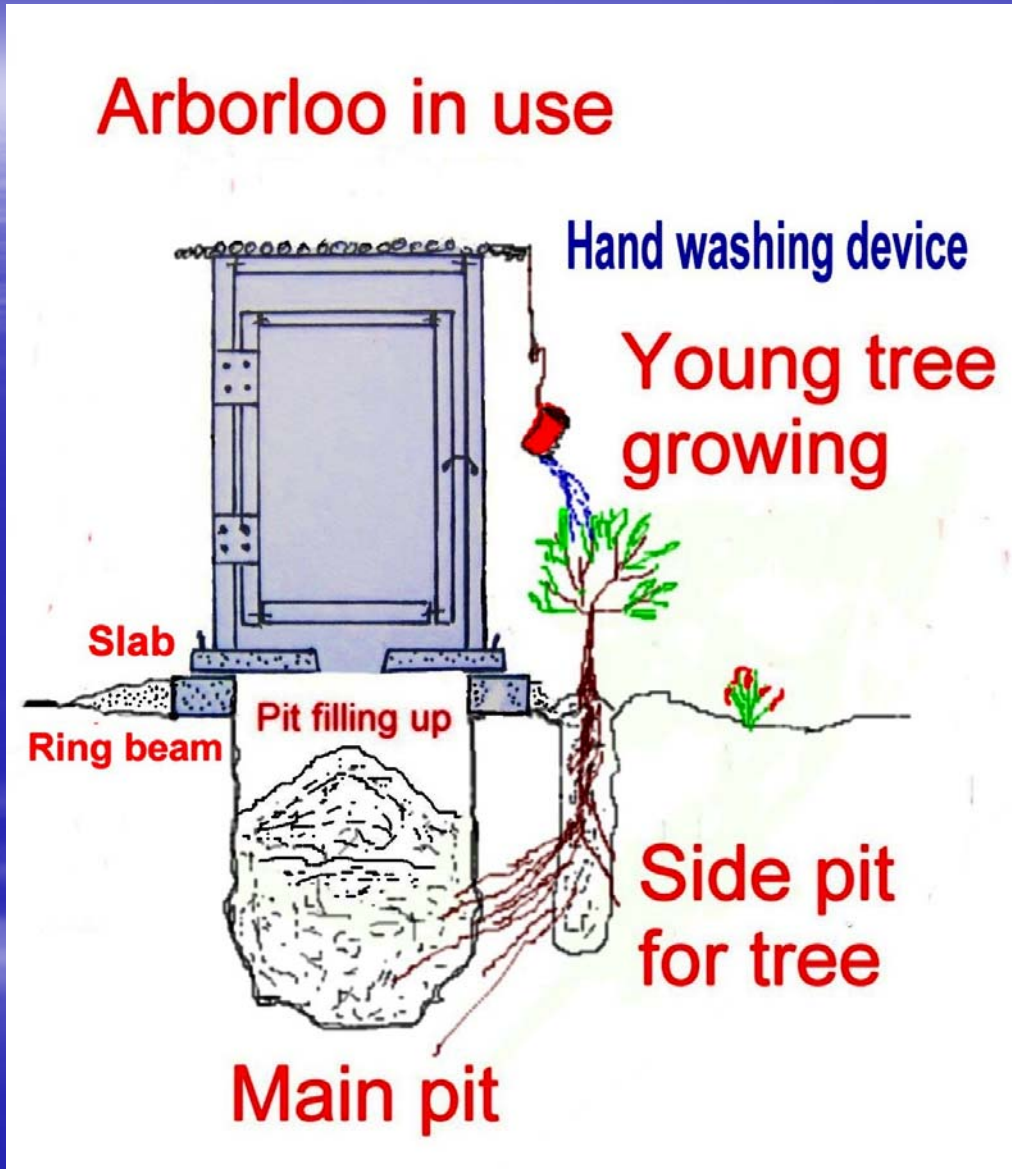
A tree is planted in the topsoil.

It is the simplest way of recycling nutrients from human excreta



The new Arborloo

Using another method, the tree is planted at the same time as the toilet is put to use. A second, narrower pit is dug near to the main pit. This second pit is filled with good soil and a tree is planted on it. The tree is watered and cared for at the same time as the toilet is being used. By the time the pit is filled a good source of nutrients has been laid down in the main pit to feed the tree. Tree roots search for richer soil under the ground.



The Arborloo is made up of 4 parts:

1. The pit,
2. The ring beam
3. The slab
4. The toilet house (superstructure).

The ring beam and slab are made of concrete. This makes them reusable. The ring beam helps to protect the pit from collapse. The pit is dug down inside the ring beam. The slab is then placed on top of the ring beam and a light weight toilet house is built around the slab.

These structures can be upgraded to a simple yet effective version of the VIP toilet if the superstructure is semi dark and a screened vent pipe is fitted.

Construction of Arborloo at school

1. Clearing the area and marking ground for slab and ring beam

Placing the brick moulds for casting the ring beam and slab around the marked circles.

The ring beam has an internal diameter of 1 metre and an outer diameter of 1.3m. The slab is 1.1m in diameter. Smaller ring beams and slabs can be made.

Mixing and pouring the concrete for the ring beam.

A mix of 10 litres cement (PC15) and 50 litres clean river sand are used. These are thoroughly mixed and added to the mould with a length of 3mm wire laid around the ring beam half way up the concrete. The ring beam is covered and left to cure.

Making the concrete slab.

This is 1.1m in diameter and made with a squat hole and vent hole (90mm or 110mm). It is made of cement (10 litres PC15) and river sand (50 litres). The slab can be cast on plastic sheet or on a levelled bed of sand. The mould is made from bricks.

Making the concrete slab.

Half the concrete mix is added first. Then at least 8 lengths of 3mm wire are added in a grid formation. The second half of the concrete mix is added and smoothed down flat with a float. The slab is left to harden overnight, then covered and kept wet for at least a week to cure before moving.

Slab and ring beam almost complete.
Both are cured for one week and kept wet.

Digging the hole inside the ring beam and ramming the soil around it. The hole is dug down to one metre only. It is safe!

Moving the slab on to the ring beam.

Since neither the slab or ring beam are perfectly flat a layer of weak cement mortar or damp termite soil is laid on the ring beam.

The slab is embedded into this.

Making the superstructure (toilet house)

The traditional method using poles and grass will work well. The holes for the upright poles are dug or drilling. The one being made here will have a spiral (door-less) shape and is made of poles and grass. Structures with doors can also be built.

Mounting the poles and roof timbers

The roof timbers are made up so that the poles placed in the ground can support the roof. It may be best to make the roof first and then drill the holes to match the roof timbers.

Mounting and linking the upright poles and roof timbers with wire.

Reeds are laid over the roof timbers to support plastic sheet and a grass cover.

Adding a plastic sheet over the reeds of the roof and grass to the walls.

The grass is tied with string or cord.

All the walls are covered with grass for total privacy.

Making and fitting a hand washing device. This is an important part of the toilet.

Finishing off – the Arborloo – without vent.

Vent pipes

If the simple toilet is to be upgraded to a VIP it must have a vent pipe. The training includes teaching methods of making low cost vent pipes with wire, reeds and cement slurry. A combination of cement paint and paper can also make a good strong vent pipe.

Fitting low cost vent pipe to structure.

Once a screened vent pipe is fitted to a structure which provides semi darkness – it becomes a VIP toilet.

VIP's are popular in Zimbabwe!

-Finishing off –
A vented Arborloo is a a low cost VIP!

-The Arborloo is the simplest ecological toilet and is an effective way of starting low cost sanitation programmes. It also demonstrates how valuable the nutrients in human excreta can be !

-Most species of tree grow well on "Arborloo pits" and also some vegetables like pumpkin and tomato.