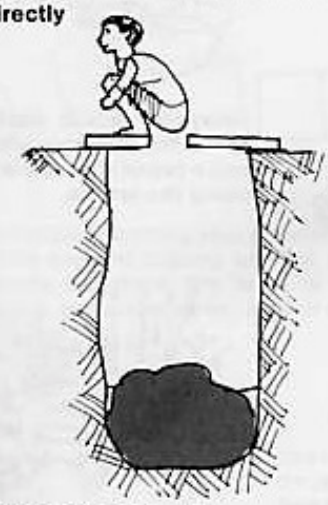
2. An introduction to pit latrines

Pit latrines

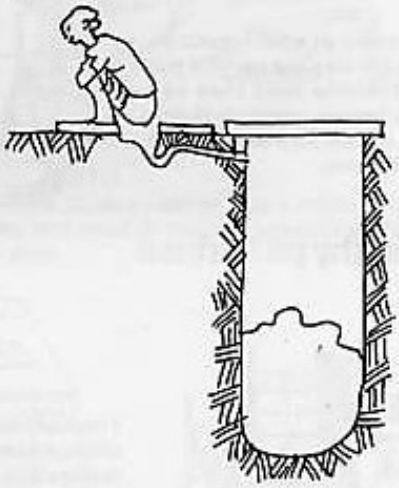
- can be as healthy as waterborne sewerage
- can be built by the users
- use a minimum of imported materials
- are low cost
- can be easily maintained by the users

A pit latrine is a way to deposit excreta

directly



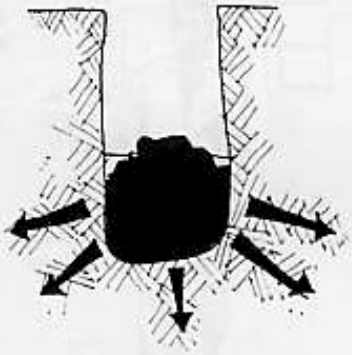
or indirectly



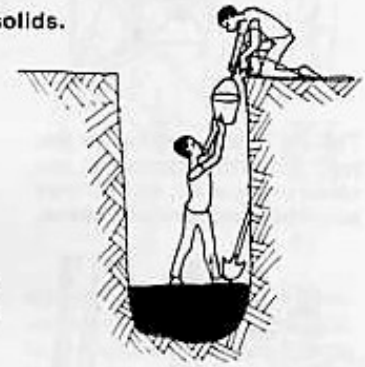
into a hole in the ground.

In the pit, excreta are decomposed into gases, liquids and solids.

Gases escape to the atmosphere.



Liquids soak into the soil.



Solids which remain become harmless after a year and can be dug from the pit and used as fertilizer.

AN INTRODUCTION TO PIT LATRINES

Cleanliness & health

Even a well-constructed latrine can spread disease unless it is kept clean.

The excreta of small children should be cleared up and put in a pit latrine until they can use the latrine properly themselves. Children's excreta are very infective.

Everyone should wash their hands thoroughly – with soap and a brush if possible – after using the latrine.

Unhealthy pit latrines

The pit is too shallow or too full, with the contents too close to the user, so that they smell bad and spread disease.

The slab over the pit does not allow water to drain away, so mosquitos can breed in it and the rough surface harbours hookworm larvae.

The pit sides are unsupported so that water can flow in, and they collapse.
The floor is made of untreated timber, so that it will collapse if the wood is eaten by termites.

The pit is open, so that flies can breed in the excreta.

The pit is wet, so that *Culex pipiens* mosquitos, which spread the disease filariasis, can breed. Filariasis sometimes develops into the condition known as elephantiasis.

The foot-rests are too far apart and the hole in the slab is too large, so that the latrine is uncomfortable for children to use, and they are in danger of falling in the pit.

Healthy pit latrines

Large pits
Pits should ideally be at least 3m deep and 1-1.2m in diameter. Pits this size may be used for up to twenty years.

Lined pits
Linings may be of treated timber, natural stone, sandcrete blocks and bricks, concrete pipes, corrugated iron, or flattened oil drums.

The hole in the squatting slab should be large enough to prevent fouling but not so large that people fall down the hole. It may be rectangular, square, oblong, oval or circular.

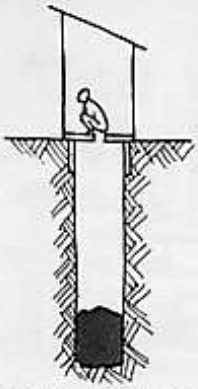
In some places people use a mixture of cow-dung and mud to make a smooth surface for the slab.

Where people squat to defaecate, and use paper, leaves, stones and other hard material to clean themselves afterwards, a pit usually has a reinforced concrete or ferrocement squatting slab over the hole.

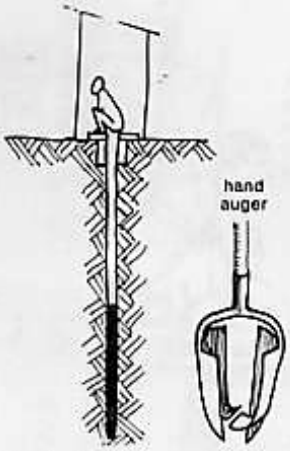
Seats can be built for people who prefer to sit.

Where people clean themselves with water, a water seal to prevent smells rising from the pit can often be installed below the slab.

Varieties of pit latrines

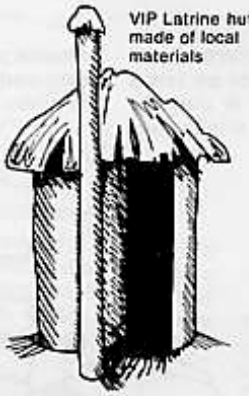


Simple pits. These can be smelly and fly-ridden, especially if they are too shallow. They should ideally be 3m deep and 1-1.2m in diameter.



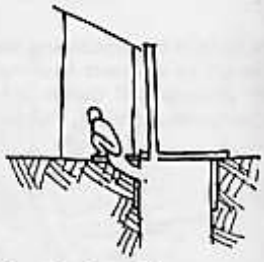
Borehole latrines. These can be quickly constructed with a hand augur. They are especially useful where a quick sanitation solution is essential (eg. refugee camps) and where people are likely to move around regularly. However, the small diameter of the hole means that it is likely to foul, block and fill quickly.

Ventilated pit latrines. These have been designed to reduce smell by drawing odour away from the squatting slab and to discourage flies and mosquitos.

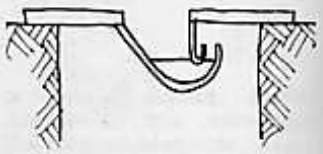


- **ZIMVIP (Zimbabwe Ventilated Improved Pit Latrine).** Its main innovation is a superstructure with a spiral cross-section.

Mound or step latrine. This type is suitable for areas where you cannot dig into the ground, eg. where the water table is high or there is hard rock near the surface. However, the user is close to the excreta.



Offset latrine. The waterseal and seat can be on firm ground. The pit can be in softer, easier-to-dig ground, and can be protected to prevent collapse. The slab can be small, as it does not have to act as a lid for the pit, useful where cement and other reinforcement are difficult to get.



Pour-flush latrine. These are most suitable where people use water for anal cleansing. Unfortunately, the pan is easily blocked and tends to get broken when users attempt to clear it with a stick.

Of course, many pit latrines are combinations of more than one of these options.