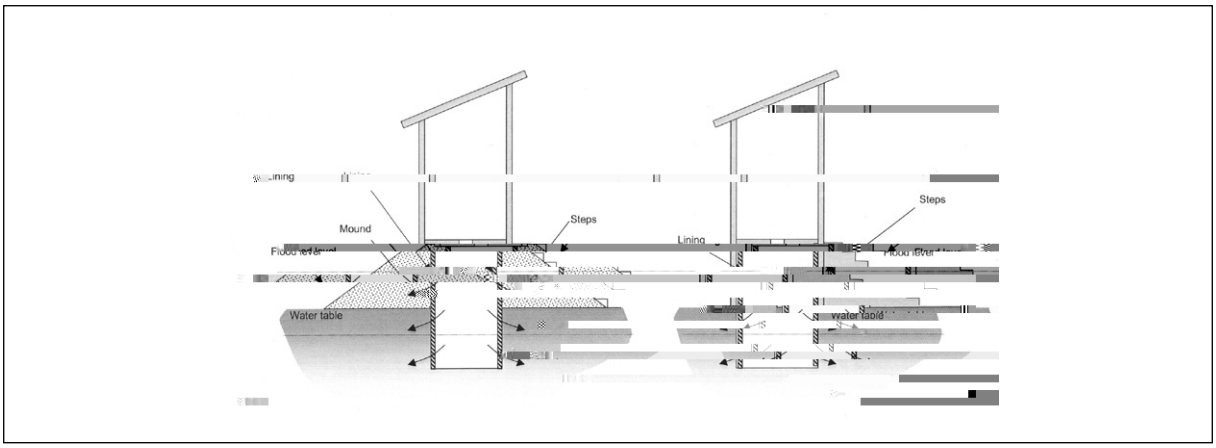
Where there is a seasonally high water table, a raised latrine may be the most appropriate option for on-site sanitation. The pit should be dug at the end of the dry season, to maximise the available depth of unsaturated soil that can be excavated. In areas with a recurring high groundwater table, this may be as little as 1 to 3 metres. It is worth trying to dig the pit below the water table if possible: firstly this increases the available volume and secondly there is evidence that wet pits take longer to fill, since the digestion processes in wet pits described by Mara and Sinnatamby (1986) are more efficient.

The pit should be lined with appropriate, locally available materials such as fired clay bricks, blockwork, porous concrete, large stones or pieces of rock, pre-cast concrete rings or ferrocement.



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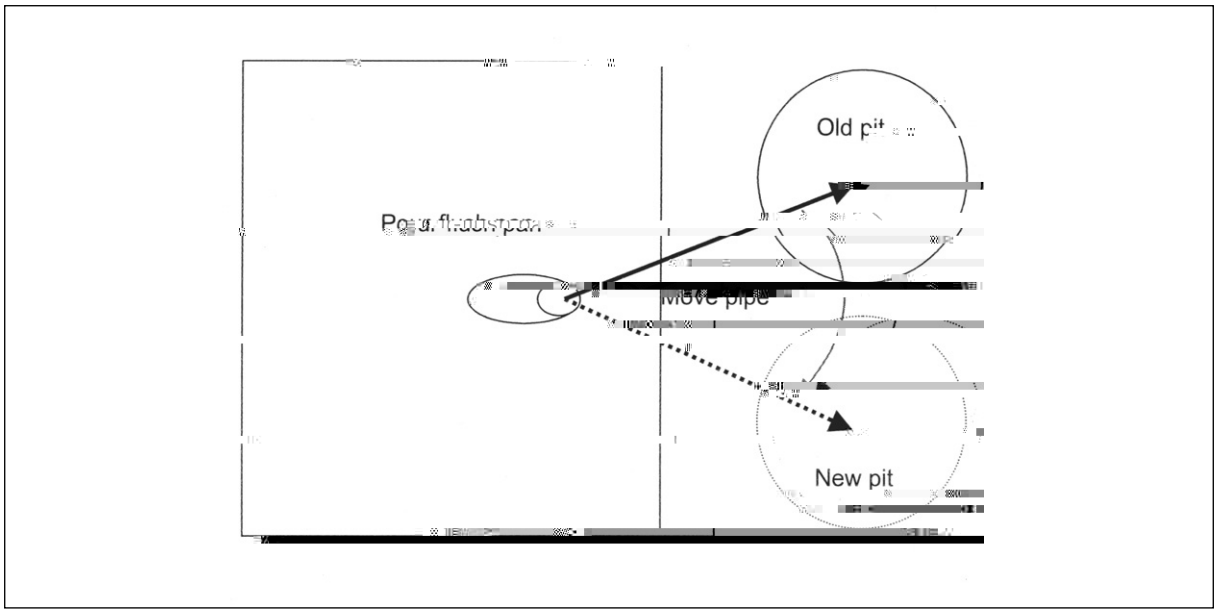
Some households in Zimbabwe use a shallow pit for about one month, after which time the slab and



F 4. Offset pour-flush latrine with two external pits

F 5. A raised latrine constructed on stilts

Low-cost, offset pour-flush latrines have been successfully used in marshy areas of rural Myanmar. The pour-flush latrines (as shown in the photograph in Figure 5) are built a metre above ground level on bamboo stilts with plastic pour-flush pans set into wooden floors. The pits, offset from the superstructure with the pipe sloping at 45 degrees, are covered only with a simple bamboo trellis and matting. This makes the pit cheap enough to be abandoned if it fills or becomes silted up. In this case a new pit can be dug and the pipe moved to connect to a new pit.

Composting latrines consist of a single or double vault construction, usually with a system to

Where the source of drinking water is an aquifer with a high groundwater table, the risk of contamination from pit latrines needs to be considered.

As a general rule, abstraction of groundwater should be at least 10 metres from the latrine (WELL, 1998).

The risk of pollution through sub-surface movement of bacteria and viruses depends on a number of factors, such as: soil composition, hydraulic gradient, the soil's pH and organic content, and rainfall. Therefore the risk of pollution needs to be assessed for each individual case.

It has been found that the linear travel of pollution is governed primarily by the groundwater flow velocity and the viability of the organisms (Lewis et al, 1980). A useful and widely accepted guideline based on this research is that the maximum distance faecal pathogens will move through unfissured soil (including sand) is as far as the groundwater moves in ten days. In low-lying flat areas, with a high groundwater table, the groundwater flow is almost certain to be less than one metre/day, so a distance of 10 metres from latrine to source is adequate.

If there is considered to be a real risk of pollution of groundwater from a pit latrine, the risk can be reduced by constructing an artificial sand barrier around the pit to create a filter effect. This is an expensive solution and it may often be more practical to develop alternative drinking water sources, at a safe distance from the on-site sanitation facilities.

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