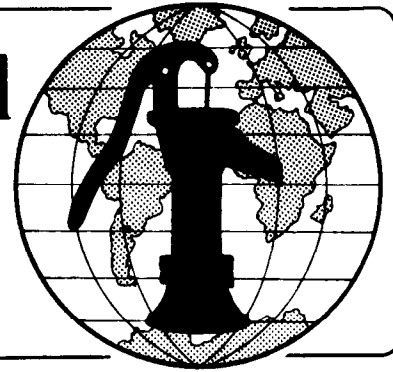


Water for the World



Simple Methods of Washwater Disposal

Technical Note No. SAN. 1.M.2

Some method of washwater disposal is important wherever water is used inside or near a dwelling for bathing, washing, or cooking. Simple disposal methods confine washwater to a sump, pit, or trench and allow it to soak safely into the ground. This reduces the chance of contaminating water supplies and prevents mosquitoes from breeding by eliminating surface pools. All of these methods are inexpensive, easy to build, and can be made from locally available materials.

This technical note describes three simple methods of washwater disposal: sump, soakage pit, and soakage trench.

Useful Definitions

CONTAMINATE - To make unclean by introducing an infectious (disease-causing) impurity such as bacteria from washwater.

PERMEABLE - Allowing liquid to soak in.

WASHWATER - Water that has been used for bathing or washing clothes, dishes or kitchen utensils.

Sump

There are two types of sump: pit and drum. The pit-type, shown in Figure 1, is a hole 0.5-1m deep dug in permeable soil, lined with concrete blocks, bricks or stones, and covered with a lid to keep out flies and mosquitoes and to prevent children from falling in. The bottom of the sump is covered with 50-100mm of gravel or crushed rock.

The drum-type sump shown in Figure 2 uses a 200-liter steel drum with holes punched in the sides and bottom. A hole large enough to hold the drum is dug in permeable soil, and the drum is lowered into it and covered with a lid.

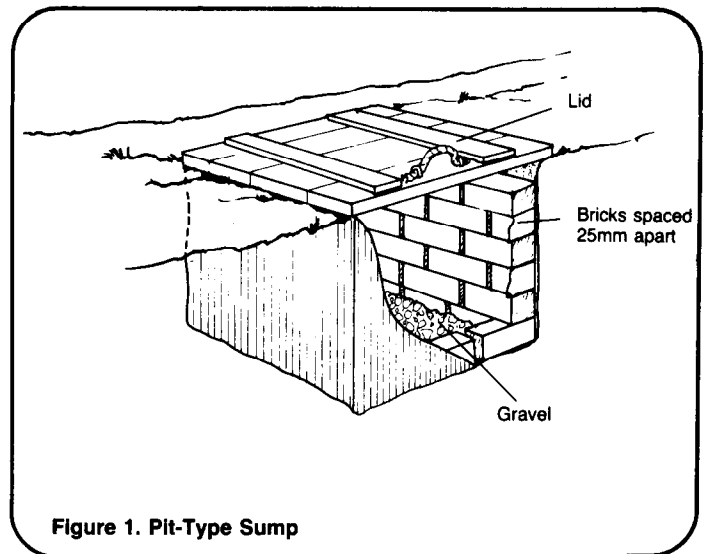


Figure 1. Pit-Type Sump

Washwater is poured directly into a sump and gradually soaks into the ground. Sumps are to be used only where there are 5 liters or less of washwater per person per day. Larger quantities of washwater require a soakage pit or soakage trench.

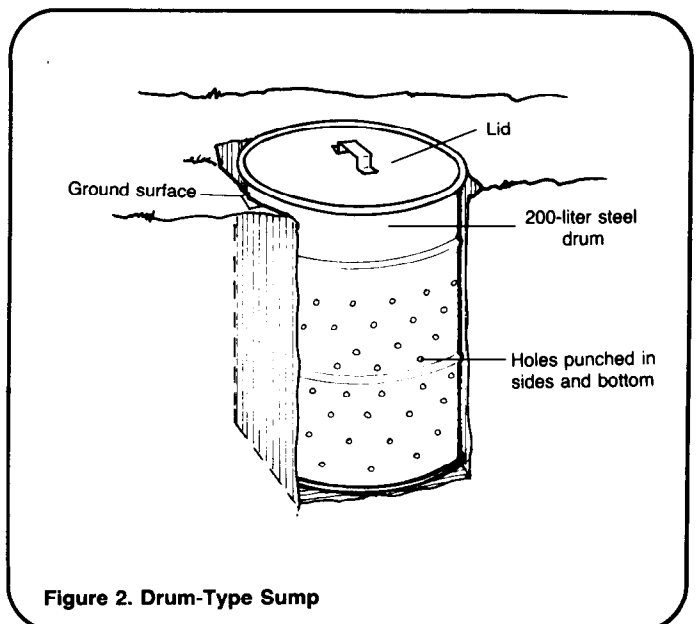


Figure 2. Drum-Type Sump

Soakage Pit

A soakage pit, shown in Figure 3, is a medium to large hole in permeable soil that is filled with rocks, equipped with a pipeline, covered with straw, and mounded with dirt. The rocks prevent the pit walls from collapsing and allow washwater to drain through to the sides and bottom of the pit. The straw prevents soil from sifting between the rocks and clogging the flow of washwater. The pipe carries washwater from a sink or drain in the dwelling, or excess liquid run-off from an aqua privy. The pipe extends to the top center of the pit.

Soakage pits may be round, square, or rectangular. They vary in size from 1-3m in diameter and from 1-3m deep, depending on the quantities of washwater and the permeability of the soil. The bottom of the pit must be at least 1m above groundwater levels.

Soakage Trench

A soakage trench, shown in Figure 4, is a relatively long, narrow, sloping hole dug in permeable soil. It is partly filled with gravel or crushed rock, equipped with a pipeline and a perforated or open-jointed distribution pipe, covered with straw, and mounded

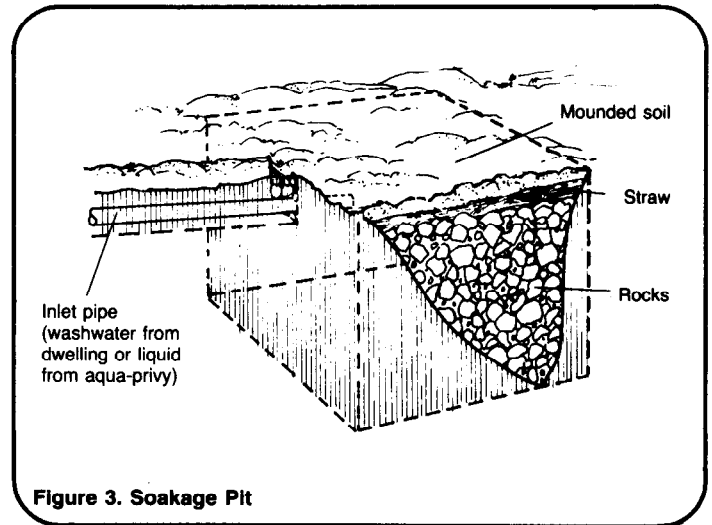


Figure 3. Soakage Pit

with dirt. The gravel prevents the sides of the trench from collapsing and allows washwater to flow through and drain to the bottom of the trench. If distribution pipe is not available, concrete blocks can be used instead. The straw prevents soil from sifting down and clogging the flow of washwater. The pipeline carries washwater from a sink or drain in the dwelling, or excess liquid run-off from an aqua privy. The pipe extends into the higher end of the trench.

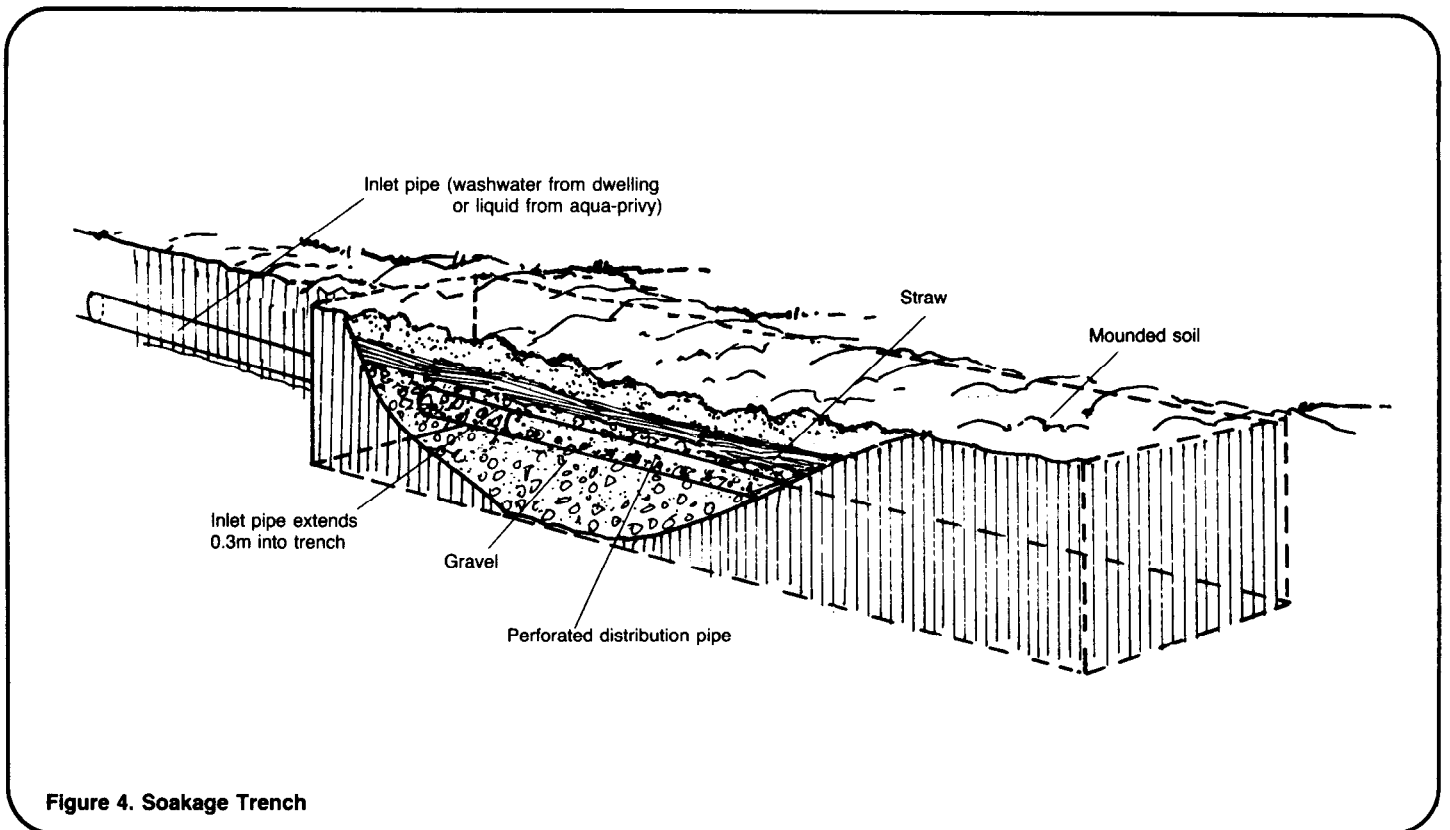


Figure 4. Soakage Trench

Soakage trenches are 0.6-1m wide, 0.6-1m deep, and vary in length from 6-30m depending on the quantities of washwater and the permeability of the soil. The bottom of the trench must be at least 1m above groundwater levels, and it must slope gradually downward away from the inlet end.

Comparison of Methods

Table 1 summarizes each of the three methods of washwater disposal. The methods are listed across the top of the chart, and the factors to be compared are listed down the left side. The table can be used as an aid in selecting a method (see "Planning Simple Excreta and Washwater Disposal Systems," SAN.1.P).

Table 1. Comparison of Washwater Disposal Methods

Factor	Disposal Method			
	Sump		Soakage Pit	Soakage Trench
	Pit-type	Drum-type		
Depth	0.5-1m	Height of drum	1-3m	0.6-1m
Diameter, or Length and Width	0.5-1m diameter	Diameter of drum	1-3m in diameter	0.6-1m wide and 6-30m
Materials Required	Concrete blocks, bricks, or stones; gravel or pebbles; wood or metal lid	200-liter steel drum; wood or metal lid	Rocks; straw, hay, or grass; length of clay, plastic, or galvanized metal pipe extending from dwelling or aqua privy to pit	Gravel, pebbles, concrete blocks, open-joint or perforated sewer pipe; straw, hay, or grass; length of clay, plastic, or galvanized metal pipe extending from dwelling or aqua privy to trench
Operation	Remove lid, pour washwater into pit	Remove lid, pour washwater into drum	Pour or drain washwater into sink, pipe, or aqua privy	Pour or drain washwater into sink, pipe, or aqua privy
Suitability	Low quantities of washwater (5 liters per person per day or less)	Low quantities of washwater (5 liters per person per day or less)	Small plot size or low groundwater levels	Large plot size or high groundwater levels