Selecting appropriate latrines

by Frank Greaves

Why do so many latrine programmes not have their intended impact on the health of the community? In recent years there has been more emphasis on changing attitudes towards sanitation and hygiene, hygiene education and community ownership. But sometimes this has meant that little attention has been given to selecting appropriate latrine technologies. This article looks at how we can guide communities to select technically appropriate latrines, while at the same time ensuring that they have what they really want.

The following two methods can be used for selecting a latrine that is technically and socially appropriate.

Method 1 (below) may reveal that more than one type of latrine is appropriate for the community. For example, where a 'pour-flush single pit offset' latrine is identified as best because a lot of land is available, a 'pour-flush twin pit' latrine could also be an option.

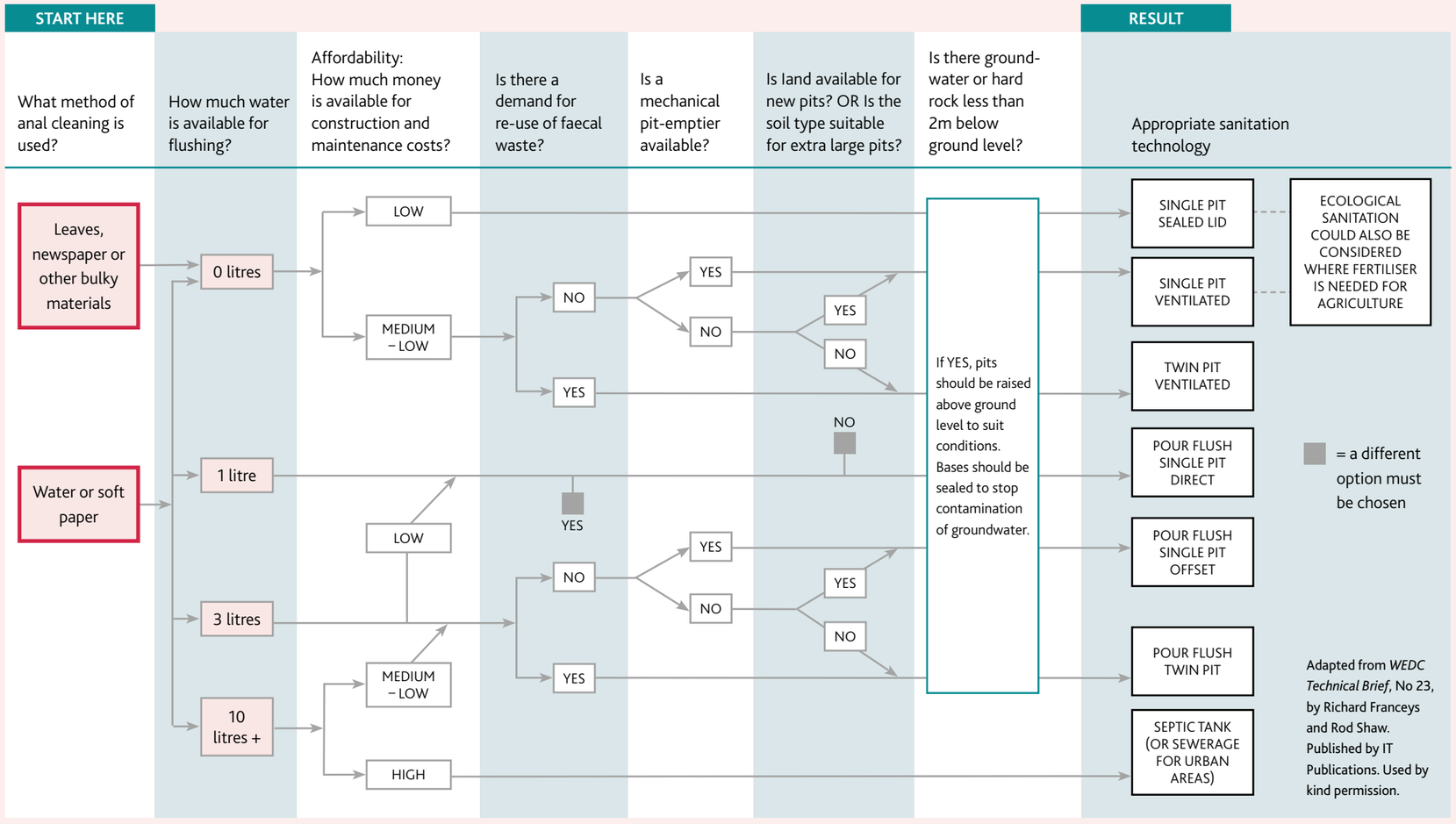
Once latrine options are identified, matrix ranking can be carried out with community members to enable them to make the final choice of latrine (see page 10).

Steve Collins

An unfinished and abandoned latrine in Honduras: a result of inappropriate planning and design.

method 1 Appropriate latrine technologies

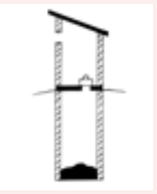
Information for this method should come from a Community Needs Assessment for water and sanitation (see *Footsteps 64*). Then use the flow chart below to identify an appropriate type of latrine for the community or household. Eight main types of latrine options are given.



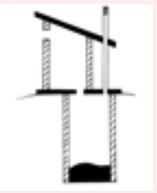
Adapted from *WEDC Technical Brief*, No 23, by Richard Franceys and Rod Shaw. Published by IT Publications. Used by kind permission.

LATRINE TECHNOLOGIES

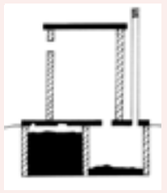
Single pit sealed lid A single pit is dug. A lid is provided so that the squat hole can be covered up after the latrine is used. This reduces odour and stops flies from entering the latrine.



Single pit ventilated A single pit is dug. A vertical ventilation pipe is installed which takes away the smell. Wind blowing across the top of the pipe sucks air out of the pit while fresh air flows into the pit through the squat hole, which must be left uncovered. To control flies, the shelter must be kept dark and the ventilation pipe should have mesh fitted over the top.

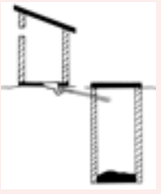


Twin pit ventilated Two pits are dug next to each other. The shelter is built partly over both pits. One pit is used at a time. Once a pit is full, it is sealed. The pipe is moved to the other pit and the other squat hole is opened. After one year, the full pit can be safely emptied and the contents used as manure.

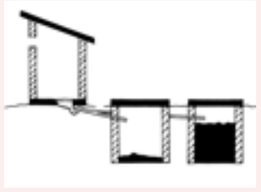


Pour flush single pit direct A single pit is dug and the shelter is built above it. A waterseal pan is used in place of the squatting slab. Each time the latrine is used, water is poured into the pan to flush it. The water acts as a barrier between the pit and the shelter. This stops smells entering the shelter and flies entering the pit.

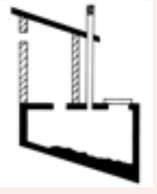
Pour flush single pit offset A single pit is dug and the shelter is built a small distance away ('offset'). A waterseal pan and pipe is installed. More water is needed to flush because the excreta has further to travel to the pit, but the advantage of an offset pit over a direct pit is that the latrine can be located in a house and the pit is outside so that it is accessible for emptying.



Pour flush twin pit This is the same as the pour flush single pit latrine, but there are two offset pits so that once one pit is full, excreta can be diverted to the other pit. After one year the full pit can be emptied and used again while the other is sealed and the contents allowed to decompose. The latrine is therefore permanent.



Ecological sanitation Ecological sanitation (eco-san) involves using the contents of the latrine for agriculture, after it has been treated to ensure it is not harmful to health. There are various types of eco-san including:



- **Composting latrine** The pit is watertight and ash or vegetable matter is added after using the latrine. After some months the mixture becomes good soil fertiliser. It is important fully to control the moisture content and chemical balance.
- **Urine-diversion latrine** *(not pictured)* When the latrine is used, urine is diverted into a separate container. After one week it can be used to fertilise crops. Faeces drop into either a container for transfer to a composting point, or into the pit where it dries out for at least six months before being used as fertiliser.

method 2 Matrix ranking to identify what the community prefers

Matrix ranking can be used to help community members to consider different types of toilet against a set of criteria, in order to identify which type of toilet is best for them.

Ask community members to describe the types of toilet that they know. Write these across the top of the matrix (see example below). Add any appropriate options identified during method 1. However, if community members have no experience of using these options, they will need to first visit another community where these types of toilet are being used.

In the matrix, list criteria against which the toilets can be judged, such as privacy and distance from home. Use those listed in the example below and invite community members to add any others.

Before they judge each type of toilet, ask community members to say how important to them each criterion is. This can be done by asking them as a group to score each criterion out of 10, where 0 is unimportant and 10 is important. Write these 'importance factors' to the left of each criterion. These scores will be used in calculations later on and will allow more weight to be given to criteria that community members view as important.

Then ask community members as a group to give a score of 0 to 10 for each type of toilet against each criterion. For example, bushes may be viewed as quite private and given a score of 8 while they may only be given a score of 3 for distance because they are around the edge of the village rather than near people's homes.

Sarah Dilloway Tearfund

To find a total score for each type of toilet, multiply each number by the importance score for that row. These numbers are given in brackets in the table. In the example below, each score for privacy is multiplied by 9, each score for distance is multiplied by 8, and so on. Then add up the scores in brackets in each column to give a total for each type of toilet.

The types of toilet can then be ranked. The toilet with the highest score is ranked '1' as the first choice, and so on. In the example below, the community's first choice is 'single pit ventilated' latrine with a total score of 250.

Adapted from Engineering in Emergencies, *(2nd Edition, 2002), Jan Davis and Robert Lambert, ITDG Publications (page 77). Used by kind permission.*

Frank Greaves is Tearfund's Programme Development Advisor for Water and Sanitation.

Email: frank.greaves@tearfund.org

Example of matrix

CRITERIA	IMPORTANCE FACTOR	TOILET TYPE			
		Bush / field	Communal latrine	Single pit ventilated	Ordinary family pit
Privacy	**9**	8 (72)	2 (18)	7 (63)	7 (63)
Distance	**8**	3 (24)	2 (16)	7 (56)	7 (56)
Bright inside	**2**	8 (16)	6 (12)	2 (4)	8 (16)
Access at night	**6**	4 (24)	5 (30)	8 (48)	8 (48)
Lack of smells	**2**	9 (18)	1 (2)	8 (16)	4 (8)
Easy to clean	**4**	7 (28)	0 (0)	7 (28)	7 (28)
Prevents disease	**5**	3 (15)	3 (15)	7 (35)	6 (30)
Total score – add numbers in brackets		197	93	250	249
	Ranking	**3**	**4**	**1**	**2**