



C2 REVEALING GOOD PRACTICE

Choosing and building latrines

At a glance

This tool gives guidance on choosing and constructing an appropriate latrine once the demand for improved sanitation has been addressed.

- Ensure men, women and children are involved and participate fully at every stage. Carefully consider social norms and cultural beliefs.
- Select the best location - away from clean water sources.
- Ensure you understand government policy and standards. Obtain relevant approvals.
- Choose an appropriate type of latrine.
- Decide whether the pit needs lining, and what material to use.
- Ensure the pit is the right size for the number of people using it. Think also about the lifetime of the latrine (ie how long it will last), or, if it is a design that will be emptied, the desired amount of time between emptying takes place.
- Decide whether to locate the pit below or above the ground (necessary in areas of high water tables, or areas prone to flooding).
- Ensure the latrine slab is properly constructed.
- Where possible use local materials and building techniques. Seek to engage the community in providing materials and helping to build the latrines.
- Ensure ownership and sustainability. Seek to train local people to make the slabs and sell them as a livelihood.



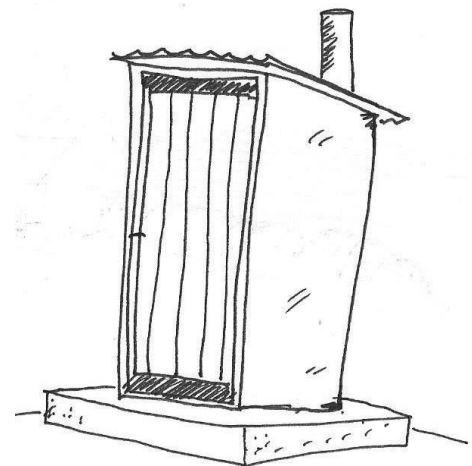
Why use this tool?

Managing and disposing of human waste safely is vital to the health, self-respect and safety of communities. It affects children's education and people's ability to earn a livelihood. This tool gives guidance on choosing and constructing an appropriate latrine for a private household. The assumption is that any latrine construction work is part of a wider water, sanitation and hygiene (WASH) programme.



A brief description

This tool will help you think about the location of the latrine, how it will be maintained and operated, the needs of those who use it, available materials and building techniques, and important physical and environmental considerations.



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Explaining the words we use

Excreta – solid faeces, which carry many harmful micro-organisms. Latrines are built to dispose of excreta safely, without it harming humans or the environment.

Decompose – the natural biological and physical breakdown of excreta into a harmless substance, like compost. This can be safely applied to land, where it adds useful minerals, and conditions the soil.

Contaminate – causing water or the environment generally to become dirty or ‘infected’ through exposing it to faeces.

Water table – the level of water, held within the soil or rocks below the ground. The water table usually rises in the rainy season, and falls in the dry season. Care must be taken to avoid contaminating the water table.

Infiltrate – the action of water moving through the soil, towards the water table.



Time taken

The actual construction of a household latrine may take between a few days and two weeks, if all the materials are easy to get hold of. The process of designing the latrine, consulting the community, siting the latrine, community training and project preparation may take several weeks before this.



Keys to success

- **Sustainability:** The most sustainable sanitation approach is when demand for latrines is created through community self-empowerment and self-awareness techniques, such as Participatory Hygiene and Sanitation Transformation (PHAST) and Community-Led Total Sanitation (CLTS). This demand is then balanced with the supply of latrine production services, such as the production of latrine components or the provision of services for sludge or compost removal.
- **Participation:** Men, women and children should participate in every stage of the project. The needs of children and vulnerable adults must be considered in the design. Explore how the community can build household latrines using local materials and techniques. Avoid subsidising latrine materials; subsidised latrines are often misused or not repaired.
- **Location:** Getting the location of latrines right is extremely important. Consider which location will enable regular use, maintenance and safety and security (especially for women). Take great care to avoid pollution of water sources: ensure at least **50 metres** between a pit latrine and a well, spring, water-storage tank or open water bod; **never** build a latrine **up-slope** of a well or spring.; and ensure that at least **2m vertical distance** is kept between the bottom of a latrine pit and the highest expected level of the water table.
- **Approvals:** Understand and obtain relevant approvals so you are not breaking any laws or regulations.



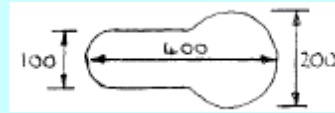
What to do

Ideally the process of choosing and building a latrine should take place *after* the community has decided for themselves that they want improved latrines, ie after 'demand' for sanitation has been established.

Ensure good participation

- **Women, men and children** need to take part in determining the need for better toilets, designing them, choosing their most appropriate location and constructing and maintaining them. How can you ensure the needs of **vulnerable groups** are considered, including people who are sick or living with disabilities?
- Ensure that **social norms and cultural beliefs** are considered when designing the latrine programme. These can affect the success of the project – whether the latrines are properly used and maintained. Such norms and cultural belief may also affect *who* is able to use the latrines: for example, in certain cultures, women who have married into a family with only one useable latrine may not be allowed to use it if it is used by their father-in-law.
- It is important to think about **children's needs**: how can you ensure younger children do not become afraid of falling through the drop-hole? Is the drop-hole the right size?

The hole should not be too large, or small children can fall into the pit. A keyhole shape with the following dimensions (in mm) is a good size:



Choose the best location

- **Where will the latrine be sited?** This is perhaps the most important consideration in disposing of excreta safely to avoid pollution and ensure regular use, maintenance and safety.
- Is access to the latrine easy and safe? Think particularly about women, children and people with disabilities.

Avoid polluting water sources:

- Ensure at least **50 metres** between a pit latrine and a well, spring, water-storage tank or open water body.
- **Never** build a latrine **up-slope** of a well or spring.
- Ensure that at least **2m vertical distance** is kept between the bottom of a latrine pit and the highest expected level of the water table.
- Where possible, consider using a Sanitary Survey (run by the community) to agree on latrine siting (see the Finding out more section below).

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Ensure you understand government policy and standards, and obtain relevant approvals.

- Find out what government guidance and regulations exist with regards to latrine-building in your area. Is there a national sanitation policy which requires minimum standards for building good latrines? For example, a concrete slab may be required.
- You could contact your local government office and ask to meet the water and sanitation technical officer. They can advise you on any approvals you need to obtain relating to location, proximity to water sources, design, construction, treatment and disposal of waste. Failure to do this could result in prosecution or the demolition of your latrines.
- It is important to make the local district government water department aware of your project. It would be very helpful, and may be required, to include them in the design, planning and implementation of the project.
- If the local government office cannot assist you, contact the district or municipal government, or the national department of water and sanitation or environment.

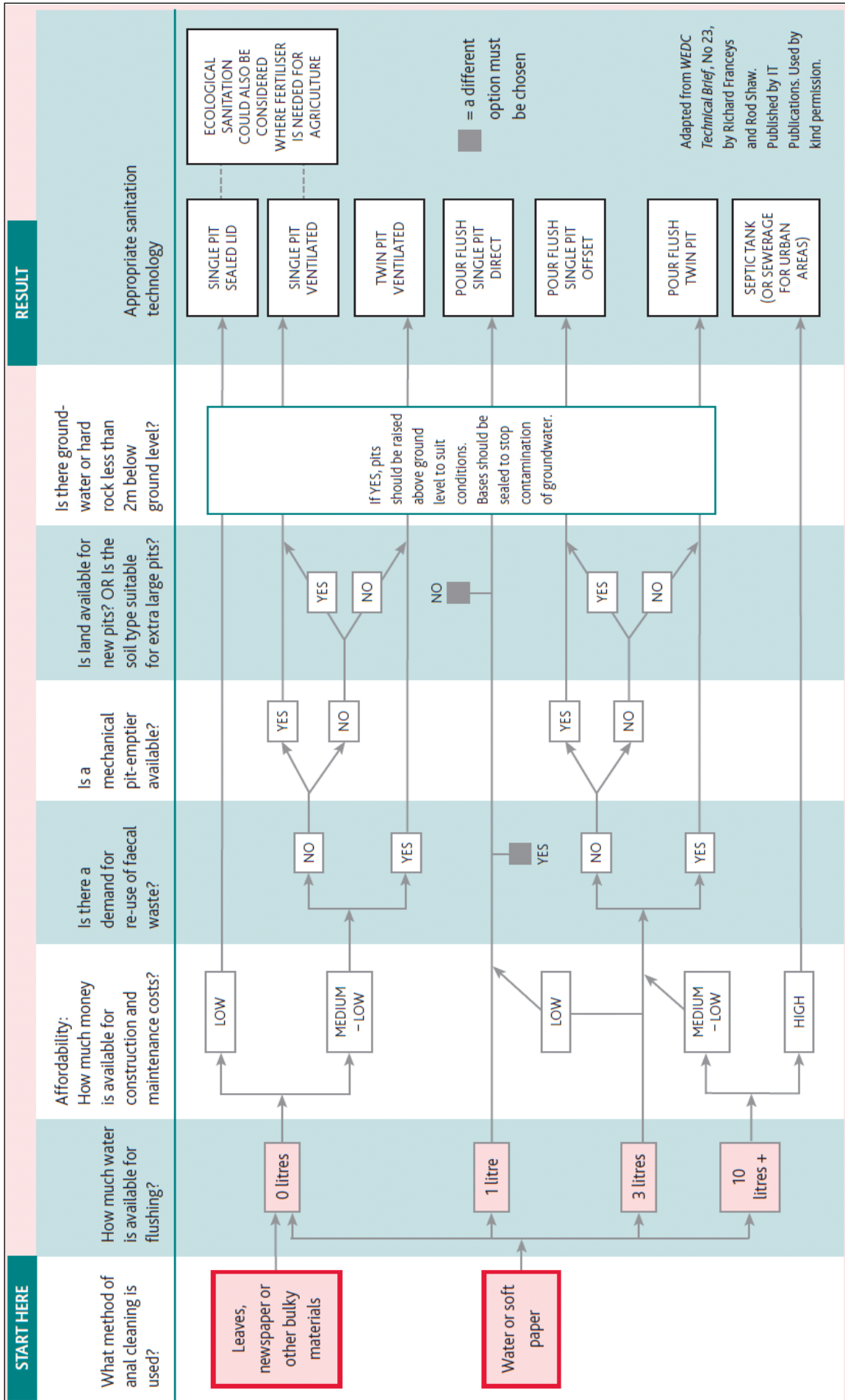
Choose an appropriate type of latrine.

Below is a flow-diagram¹ which can be used to help choose a latrine depending on the local physical and environmental conditions. The diagram should be used as a guide; actual designs and preferences should be discussed and decided with the community. One way to do this is by facilitating a **matrix ranking** exercise. Tearfund's magazine, *Footsteps 73 - Sanitation*, page 10 has an example of one of these. Please see the link in 'Finding out more', below.

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¹ Source of flow diagram: Tearfund (2007) *Footsteps 73, Sanitation* – http://tilz.tearfund.org/en/resources/publications/footsteps/footsteps_71-80/footsteps_73/

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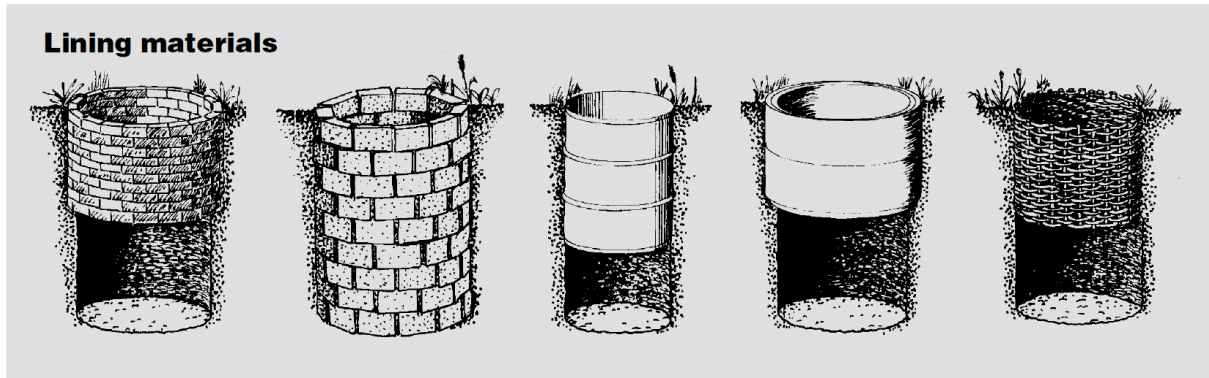


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Decide upon an appropriate pit lining.

- Does the pit need lining?
- What lining is appropriate?
- Will the pit collapse if it is wet? (This can happen in loose, unstable soils, and in soils which are wet or under water for long periods.)

See the example below of different linings that can be used: The images, from left to right, show linings for: brick block, cement block, steel lined, cement ring lined and woven basket lined.



Source: Tearfund (1997) Footsteps 30 – *Water, sanitation and hygiene*

Ensure the pit is the right size.

Is the pit big enough? How do we know what size it should be? Here is a simple example of how to calculate the size of a latrine pit:

Example: A family of two adults and four children, who build a latrine to last five years.

0.06 cubic metres is needed per person per year. The size needed is:

$5 \text{ (years)} \times 6 \text{ (people)} \times 0.06 = 1.8 \text{ cubic metres}$. If the pit is 1 metre wide and 1 metre long, then a depth of 1.8m will be needed.

Add a further 0.5m to the depth to allow for burying the pit with soil when it is full. This means that the pit will need to be $1.8 + 0.5 = 2.3\text{m}$ deep.

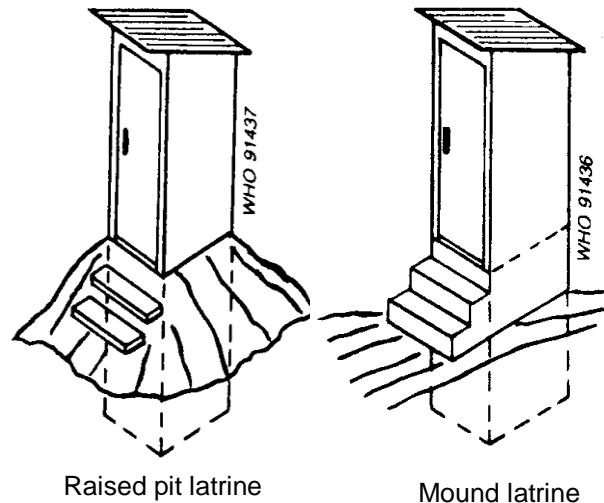
A greater volume, for example 0.1 cubic metres, should be added where bulky cleansing materials such as corn cobs or stones are used. Don't forget to consider the volume taken up by the pit lining too – this can be significant where large stones or breeze blocks are used.

Decide whether to locate the pit below or above the ground.

Most latrine pits are dug into the ground.

However, what if the ground is very hard and difficult to dig, or the soil layers contain boulders? In this case, it is likely that you will need to construct most of the pit above ground.

Latrines built above the ground will need more building materials, and so cost more. One way to reduce the cost is to build several latrine blocks joined together under a single roof. But is this acceptable to the community?



Source: WHO (1992) A guide to the development of on-site sanitation

Ensure the latrine slab is properly constructed.

Consider the two alternative approaches to slab construction below.

Where possible, use local materials and building techniques.

It is important to explore how the community can build household latrines using local materials and techniques. This helps to avoid communities becoming dependent on external help. Donated or subsidised latrines are often misused, and are not valued or looked after. Consider asking focus groups to discuss the cost and availability of materials. Together with the community, you could write a simple table. The following is an example:

Latrine part	Local materials which may be used	Available from	Cost
Pit lining	Natural stone	Hillside, beach, local quarry	None
	Bamboo	Forest	None
	Wooden poles	Forest	None
	Burnt brick	Brick yard	Approx \$8
Latrine slab	Wooden poles and compacted soil	Forest	None
	Bamboo poles and compacted mud	Forest	None
Walls	Wattle and daub	Edge of village	None
	Reed mats	Fields, or market	\$1-\$2 if bought
Roof	Thatch	Fields	None

Ask the community to gather the necessary sand and gravel at the site, and to provide the labour necessary for the preparation and construction. Engage the local government water supply office to approve the works, and to offer assistance where possible in terms of advice in construction, and help with providing materials (eg transport, or source for sand and

gravel). It is always good to involve local government water and sanitation departments in assisting with and approving the work. However, the development of community latrines should be an empowering process, so care should be taken to avoid local government bureaucracy creating unnecessary higher standards.

Ensure ownership and sustainability

Can local artisans be trained to make latrine slabs and other parts, and to sell them as part of a sanitation marketing approach? The most sustainable sanitation approach is when the demand for latrines – achieved through community self-empowerment and self-awareness techniques, such as Participatory Hygiene and Sanitation Transformation (PHAST) and Community-Led Total Sanitation (CLTS) – are balanced with the supply of latrine production services, for example training artisans to make components and market their products, or providing services for sludge or compost removal.



Finding out more

- For a step-by-step guide to building a basic pit latrine, see *A practical guide for building a simple pit latrine*, Global Water Initiative, West Africa, June 2011: www.qwiwestafrica.org/en/themes/promoting-safe-affordable-design-self-construction-latrines
- Tearfund (2015) Footsteps 97, *Hygiene and sanitation* - http://tilz.tearfund.org/en/resources/publications/footsteps/footsteps_91-100/footsteps_97/
- Tearfund (2007) Footsteps 73, *Sanitation* – http://tilz.tearfund.org/en/resources/publications/footsteps/footsteps_71-80/footsteps_73/
- WEDC (2004) Low-cost toilet options – a catalogue: Social marketing for urban sanitation – <https://wedc-knowledge.lboro.ac.uk/details.html?id=14478>
- PACE Project, Action Sheet 26: *Building toilets* - <http://www.paceproject.net/water>
- WHO Fact Sheet 3.4: *Simple pit latrines* - http://www.who.int/water_sanitation_health/hygiene/emergencies/fs3_4.pdf
- WEDC Technical brief 50 – Sanitary surveying - <http://www.lboro.ac.uk/well/resources/technical-briefs/50-sanitary-surveying.pdf>

Related tools:

- A1 – Revealing sanitation: information for facilitators [A1: Water, sanitation & hygiene-1]
- B – Sanitation (Bible study) [B: Water, sanitation & hygiene-2]

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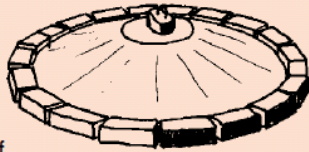
Alternative approaches to constructing latrine slabs

Domed concrete slabs

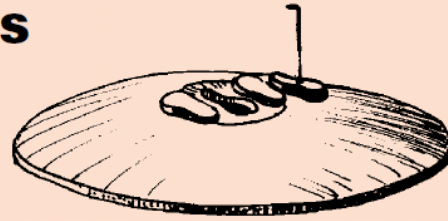
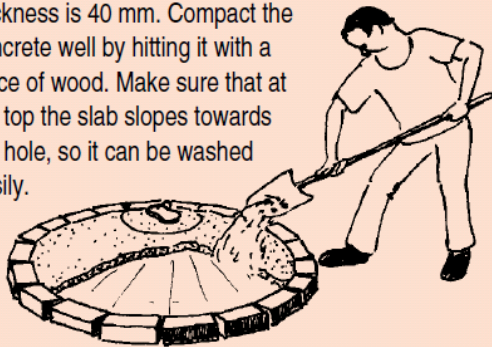
Unlike the traditional concrete slabs, these are not reinforced and are much thinner. They gain strength instead from their domed shape.

1 Lay bricks side by side on a flat piece of ground so that their ends form a circle with a diameter of 1.5m.

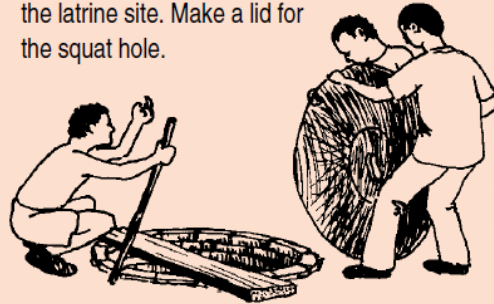
2 Compact (by treading on it) a pile of damp sand inside the circle so only the top 40mm of each brick is showing, and the centre of the pile of sand is 100mm higher than the level of sand by the bricks. You can rotate a shaped piece of wood to get a good shape. Cover the sand with wet paper. Add an oiled wooden mould for the squat hole.



3 Mix concrete (same mix as for the sanplat above) and lay it on the sand so that the thickness is 40 mm. Compact the concrete well by hitting it with a piece of wood. Make sure that at the top the slab slopes towards the hole, so it can be washed easily.



4 As the slab hardens, add footrests and make the slab as smooth as possible using a metal trowel. As soon as the surface hardens, cover the slab with sand and keep this wet for at least a week. Then you can roll the slab to the latrine site. Make a lid for the squat hole.



5 You can use the slab over a 1.1m diameter unlined pit, but there is a danger that the sides might collapse, so it is better to have a pit with a lining at the top to match the diameter of the slab.



Source: Tearfund (1997) Footsteps 30 – *Water, sanitation and hygiene*

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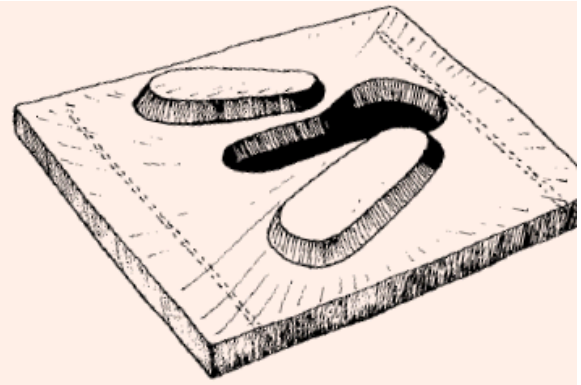
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Sanplats

These are small slabs of concrete which are placed over the hole of an existing latrine, resting on a floor made of logs and clay.

1 Make a small concrete squatting slab 600mm x 600mm x 40mm thick, using a mix of cement (1 part), sand (2 parts) and small stones (1.5 parts). Make the top of the slab smooth and sloping towards the squat hole. The slab can be unreinforced because during use it is supported by the clay and logs. However, it is best to use a small bar or some thick wires in the slab at each end of the squat hole to prevent the slab cracking.

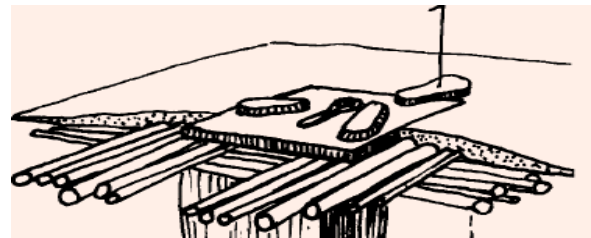


Line the squat hole with wet paper and then cast a lid inside it to make a good cover.

3 Keep the slab and lid wet for at least a week so the concrete becomes strong. Place the sanplat over the hole of an existing latrine, making the top level with a clay floor. Make sure people replace the lid when it is not in use.

1

2 Add footrests. They should be about 350mm long, 150mm wide, 20mm high and shaped as shown above. Cut out the squat hole with sides sloping inwards to support a removable concrete cover.



Source: Tearfund (1997) Footsteps 30 – *Water, sanitation and hygiene*

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