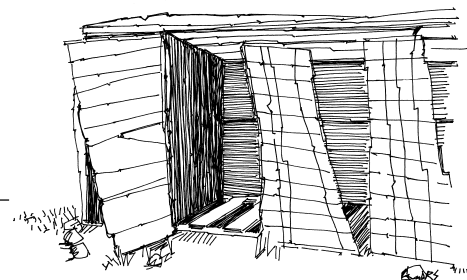


Emergency sanitation

– technical options



World Health Organization



The immediate provision of clean water supplies and sanitation facilities in refugee camps is essential to the health, well-being and, in some cases, even the survival of the refugees.

Sanitation is usually allocated a much lower priority than clean water, but it is just as important in the control of many of the most common diseases found in refugee camps.

Sanitation is the efficient disposal of excreta, urine, refuse, and sullage. As indiscriminate defecation is normally the initial health hazard in refugee camps, this note outlines ways in which it can be controlled temporarily while long-term solutions are devised.

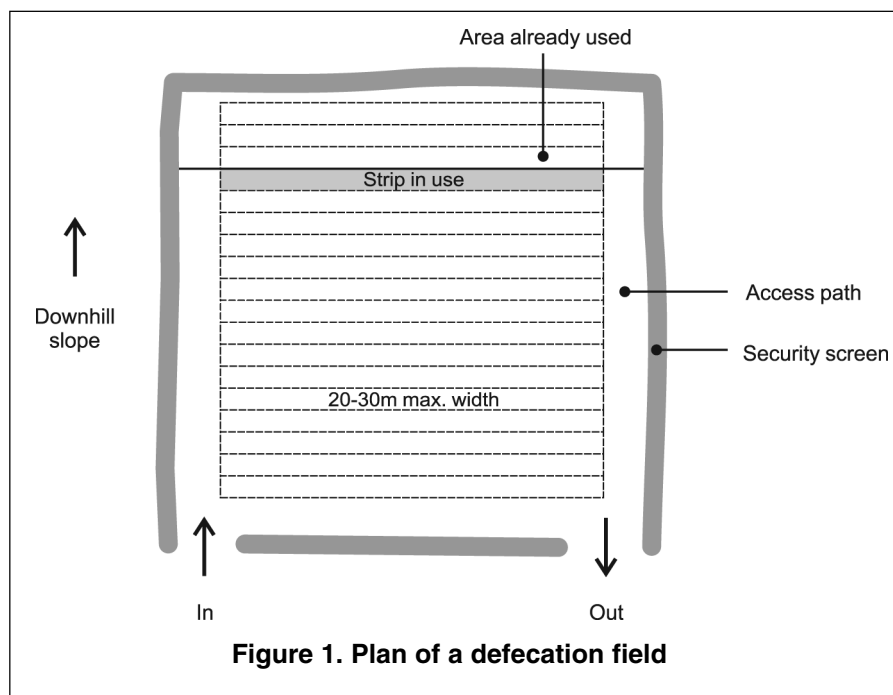


Figure 1. Plan of a defecation field

Immediate measures

The technical options for emergency excreta disposal are limited and simple. If they are to work, however, they must be managed well and *be understood and supported by the community*.

The immediate tasks at a new camp include:

- obtaining the services of a good translator and consulting with all interested parties including representatives of the refugees, aid agencies, and government officials;
- surveying the site to gather information on existing sanitation facilities (if any), the site layout, population clusters, topography, ground conditions, and available construction materials;
- preventing defecation in areas likely to contaminate the food chain or water supplies; and
- selecting areas where defecation may safely be allowed.

Preventing defecation in certain areas

When a large group of people are excreting indiscriminately, it is necessary, first of all, to protect the food-chain and water supplies from contamination. This means preventing people defecating on:

- the banks of rivers, streams, or ponds which may be used as a water source. If water is to be abstracted from shallow wells, then it is important to ensure that these wells are situated upstream of the defecation areas; or
- agricultural land planted with crops, particularly if the crops are soon to be handled or harvested for human consumption.

Keeping people away from such areas may not be easy, particularly where traditional habits make such practices common. It may be necessary to construct a physical barrier, such as a fence, which may need patrolling. Immediate measures to control indiscriminate defecation should not be solely negative, though; it is much better to designate areas where defecation is allowed than to fence off those that are not.

Defecation fields

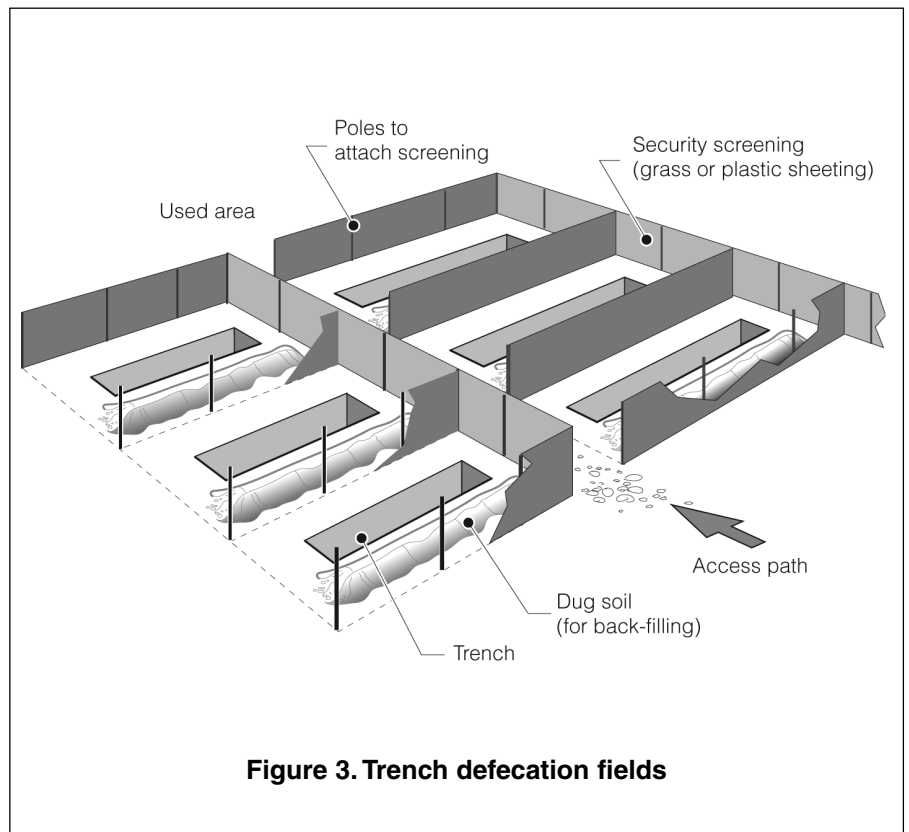
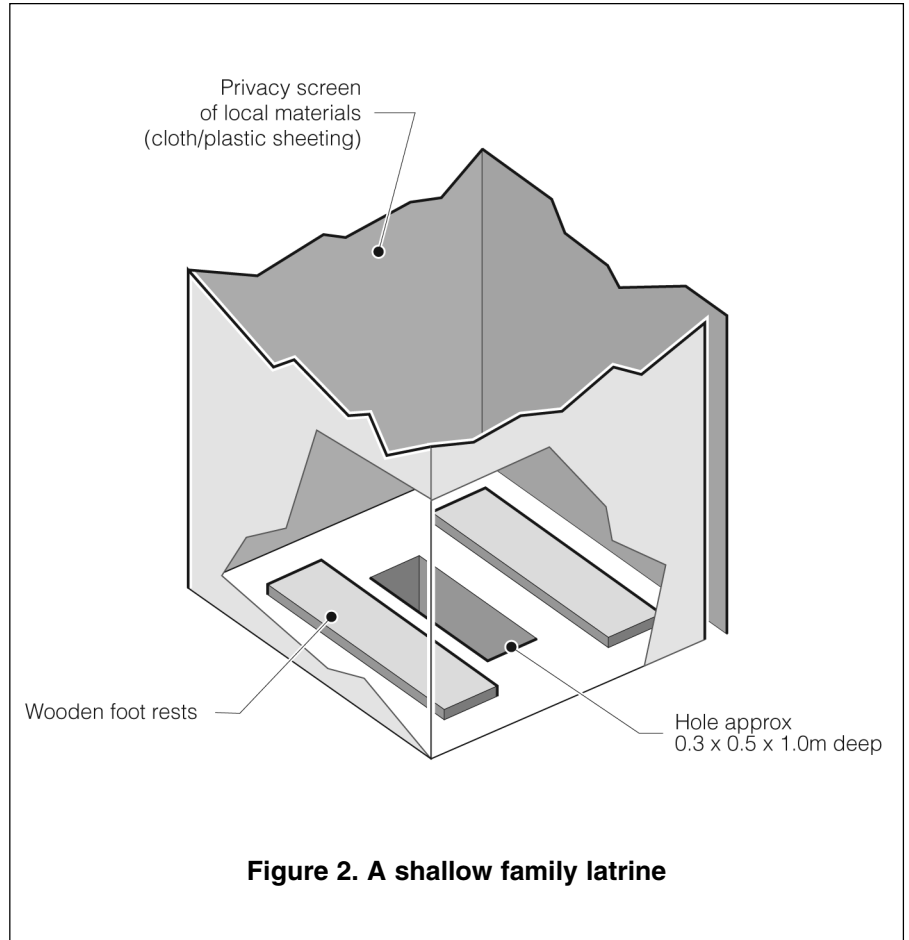
Areas with fixed boundaries within which defecation is permitted are known as 'excretion' or 'defecation' fields. The use of these fields localizes pollution, and makes the management and the cleaning of the site easier. They should be located carefully so that they are easily reached by the community but do not pollute water supplies or sources of food. It is better if there are a number of fields at roughly equal intervals over the site area, as this will reduce the walking distance for most users and allow for flexibility of operation and the separation of the sexes.

The defecation field should be as large as possible, but it should not be open for use all at once. It is better to divide the field into strips so that a different strip can be used each day. The area of the field farthest from the community should be used first, so that people do not have to walk across contaminated ground to reach the designated area (Figure 1).

Intermediate measures

The life-span of the excretion fields is not long because the areas polluted by excreta cannot be used again unless a system is established to cover the excreta with soil. Their purpose is to allow time for latrines to be built.

The ideal solution is to provide each family with their own latrine, but unless this is the simplest of structures (Figure 2), it is neither feasible nor advisable immediately. In the early days it will not be known how long it will be before the situation which has caused the disruption to the refugee community will return to normal. Furthermore, refugees will naturally be unsettled at this stage, and may be unable or unwilling to commit themselves to the maintenance of permanent or semi-permanent



structures that may suggest that their displacement will last a long time.

An intermediate solution is required. It is usual for this to be some form of communal latrine, as communal latrines are quick and cheap to construct. Some are commercially available, but these are expensive and take time to transport to the site. In most cases, 'trench' latrines provide the simplest solution (Figures 3 and 4).

Trench latrines

A trench latrine is a rectangular hole in the ground. The hole should be dug as deep as possible — about 2m and may be lined with timber where there is danger of collapse. It may be of any convenient length, usually between 5 and 10m, and between 1 and 1.5m wide. The trench is spanned by pairs of wooden boards on which the users squat (see Figure 4). There is a gap between the boards through which the users excrete. An alternative (and better) solution is to use plastic squatting slabs overlaying the boards if these are available.

Preferably, each pair of boards is separated by a simple screen to provide privacy. In wet weather a roof is needed to prevent the trench from filling up with rainwater. A drainage ditch should be built to divert surface water.

Each week the contents of the trench are covered by a 100 to 150mm-deep layer of soil. This will reduce the smell and prevent flies from breeding in the trench. When the bottom of the trench has risen to within 300mm of the surface, the trench is filled in and the latrine is closed. A trench latrine system is very labour-intensive and requires constant supervision. Not only must the contents of each latrine be covered each day, but new latrines must be prepared, old ones filled in, and regularly used latrines cleaned. Close supervision is essential. A poorly maintained latrine will quickly become offensive to the community and will not be used.

Making use of existing facilities

If refugees settle in or near urban areas, it may be possible to make use of existing facilities such as sewers, public toilets, bucket latrines, or drains.

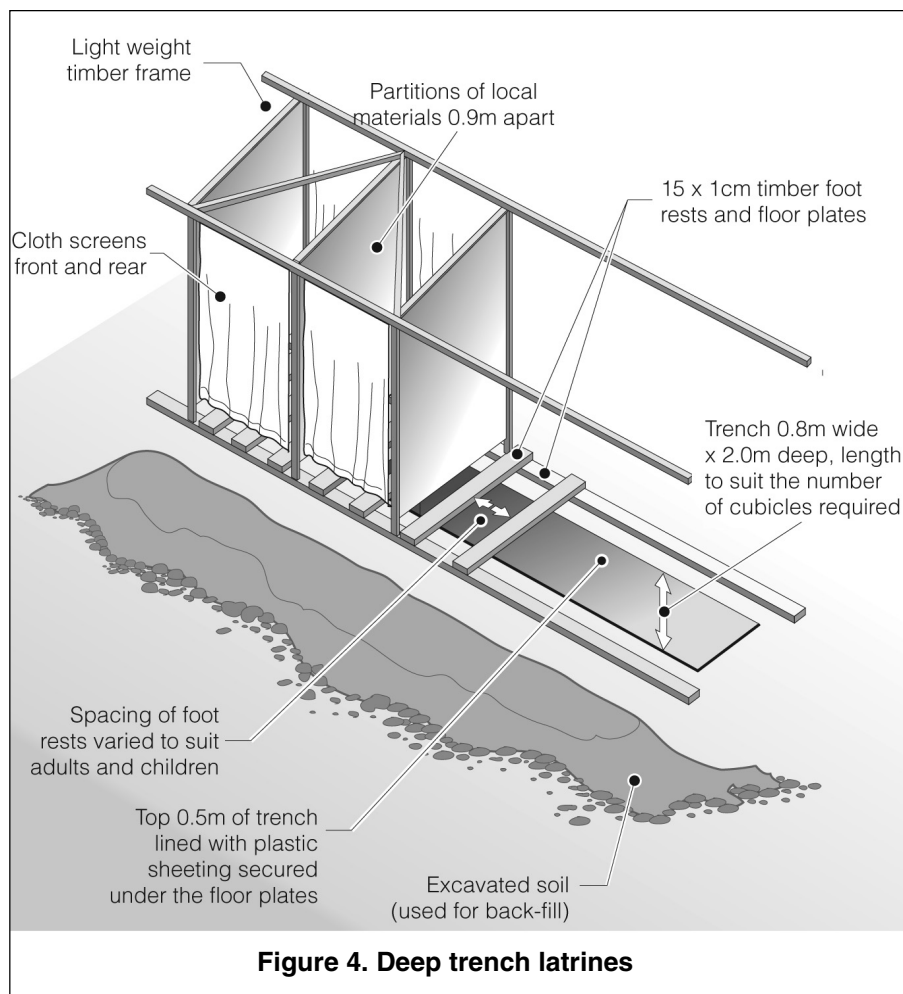


Figure 4. Deep trench latrines

Mobile package latrines

In the North, mobile package latrines are common. There is no reason why they cannot be used in other places provided provision is made for the ultimate disposal of the excreta.

Borehole latrines

In areas with deep soil, many borehole latrines can be built in a short time using hand augers. The holes are usually 30 to 50cm in diameter and 2 to 5m deep. The top of each hole is lined with a pipe, and two pieces of wood comprise the footrests. Borehole latrines should be closed when the contents are only 500mm from the surface.

Long-term solutions

Trench or borehole latrines are only an intermediate solution because their operation is so labour-intensive and requires constant supervision. As soon as it becomes obvious that the community is likely to remain disrupted for any length of time, longer-term solutions should be sought. In most cases, some form of on-site sanitation will be most appropriate.

Emergency sanitation – technical options

Community mobilization

The safe disposal of excreta in refugee camps is primarily the result of good supervision and management, and this can only be achieved with the full co-operation of the community. It is essential, therefore, that the community is fully consulted at all times and that their views are considered and their suggestions implemented. Problems may arise as immediate sanitation measures usually conflict with personal habits and social customs, but strict control measures at the outset, when people are still disorientated, will usually help them to become accustomed to new ideas and methods. Later, the supervision of the excretion fields and the policing of protected areas can easily be done by the community itself.

The co-operation of the community will only be gained and retained if it is kept fully informed of what is being done and why. Information is communicated best through group meetings and personal contact.

Group meetings

Group meetings can be used to advise the community about what is proposed, how the systems will operate, and why they are important. Such meetings should give the community an opportunity to question and advise on what is being proposed. It is important that every effort is made to include as many of their views as possible. In the early stages, the community is usually too tired and confused to contribute to the proposals, but this stage quickly passes and soon the community will start to take a lively interest in its surroundings.

Individual contact

Group meetings are effective at passing on general information, but there is a possibility that some sections of the community will not be reached and these meetings are not appropriate for dealing with individual problems. For these situations, personal

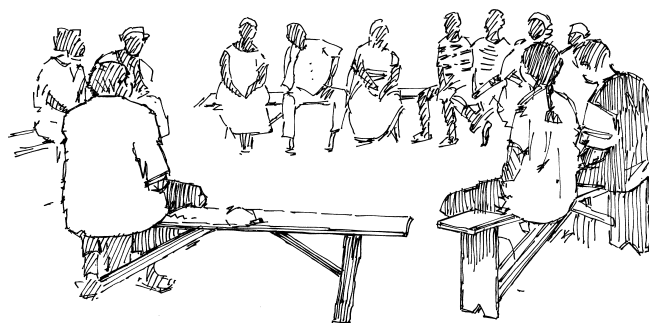
contact is more appropriate. Improving hygiene awareness, particularly among mothers, is usually better achieved on a one-to-one basis or within very small groups. Such education is long term and slow, but it should be started as soon as possible since it is often easier to establish new behaviour patterns in a community before it becomes established.

Labour

The day-to-day operation of latrines and programmes of education require substantial labour. While key management posts are likely to be provided from outside the area, much of the initial routine work can be done by the community. In most cases the community is only too willing to help since it gives people something to do, prestige, and possibly a source of income. Latrine supervision is not a popular job and will almost certainly have to be paid for. Motivation may be improved by providing a uniform and protective clothing or installing special bathing facilities for supervisors. People working on latrine operation require little or no training; those involved in health education and information dissemination will require more.

Further information

Harvey, P., Baghri, S. and Reed, R.A. (2002) *Emergency Sanitation – Assessment and programme design*, WEDC, Loughborough University, UK.



World Health Organization

WHO Headquarters
Avenue Appia 20
1211 Geneva 27
Switzerland

Telephone: (+ 41 22) 791 21 11
Facsimile: (+ 41 22) 791 31 11
Telex: 415 416
Telegraph: UNISANTE GENEVA



This information has been prepared by WEDC

Author and Series Editor: Bob Reed **Design:** Glenda McMahon **Illustrations:** Rod Shaw **Graphics:** Ken Chatterton

Water, Engineering and Development Centre, Loughborough University, Leicestershire, UK.

Phone: +44 1509 222885 Fax: +44 1509 211079 E-mail: WEDC@lboro.ac.uk Website: www.lboro.ac.uk/wedc