

4.11.5 Waste disposal

See 4.13.6

4.11.6 Public health education

Visit a nearby village to get some idea of what level of hygiene people are used to. This is what your local staff are used to. Gear your messages to them first.

Arrange for the staff to discuss and be instructed in basic hygiene and health messages and practices, and in proper use of latrines, before they start work. They are the best help in passing health messages on to the feeders.

The most important "messages" to gain understanding for are that it is a good idea to:

- feed the sick
- replace all lost liquids, esp. during diarrhoea
- use the latrine & hand-washing facilities consistently and cleanly

4.11.7 Mass health programmes

1. Hygiene

Work with MOH on these. See 4.11.6 above

2. Immunisation

MOH's EPI are responsible for this work in Ethiopia. Contact them early and make any plans together. Make sure that all vaccination campaigns in your feeding programme, in addition to being organised according to MOH specifications, are:

- organised according to a "worst first" policy
- identified with YOUR identification numbers
- recorded on YOUR record cards

This will make the administrative job of checking and follow-up much easier.

The following list shows the relative priority for the individual vaccinations, based on relative mortality rates and the feasibility of successful immunisation.

First priority — MEASLES

Measles is a major single cause of death among malnourished

children. Arrange with MOH to vaccinate ALL children from 6 months to at least 5 years, however transient they are in your camp.

Get agreement that if organisation or vaccines are inadequate to vaccinate all children, the most malnourished will be vaccinated first.

Second priority — MENINGITIS (Meningococcal), but investigate first!

If you think there is meningitis in your camp or area, consult MOH workers to discover if this is a local problem, and if so, at what time of year there have been previous epidemics. Make arrangements to vaccinate at least all malnourished children before the epidemics usually start.

Third priority (only for long-stay camps)—TB, DPT, POLIO

BCG There is a lot of TB, and it flourishes in overcrowded live-in shelters. Vaccinate ALL children when you have the time and resources to organise it. Meanwhile, improving living conditions and diet contribute to both prevention and treatment of TB.

DPT & POLIO This series of vaccinations must be completed to be effective, so it is only worth considering in camps where the population is semi-permanent and a developed infrastructure can guarantee some chance of success. We tried to avoid children & their families staying in camps so long during the recent crisis.

3. De-worming

In Ethiopia, the prevalence of ascaris is very high, and the incidence among malnourished children in SCF feeding centres was startling (90%+).

Routine de-worming with Piperazine of all feeders in live-in feeding programmes had very good results. SCF Bulbulo had the most consistent de-worming programmes and recorded the most rapid, high and stable weight gains.

Coordinate de-worming with registration and nutritional status monitoring. One auxiliary can be responsible for physically making sure the dose is swallowed, and another for clerical work (see 5.4.6)

4. Vitamin supplementation

Consult MOH for an assessment of deficiency problems in their area. SCF has found that the following supplementation is required in Northern Wollo.

Vitamin A

One 200,000 IU capsule of Vitamin A, on registration, to

— ALL children over 12 months

— ALL pregnant and lactating women

Repeat after 4-6 months.

Iron & Folate

The main cause of anaemia in highland Ethiopia is malaria, since hookworm is uncommon there.

Iron and folate supplementation should be given only to those few with haemoglobin levels below 8 g %.

Vitamin C

SCF has not found scurvy during its work in Ethiopia, despite a surprisingly low normal intake of Vitamin C. In view of the levels of social stress, migration and dislocation of homes and markets, you should nevertheless watch out for signs of Vitamin C deficiency in long-term destitute families.

Vitamin D

Many women still keep their children inside or in the shade for the 40 days after birth required by tradition, or even longer, increasing the potential for rickets.

Make sure live-in patients will have space to take small children out to play in the sun.

5. Chemoprophylaxis - notes

Provide appropriate prophylaxis for all your staff.

Malaria

There is not much malaria above 2000 m, and no known chloroquine resistance in Ethiopia yet.

Cholera

The severity is reduced during an epidemic by chemoprophylaxis. Tetracycline given daily is recommended for close contacts.

Typhus

There is some evidence that Doxycycline taken weekly reduces the incidence of scrub typhus, and may reasonably be assumed to do so for epidemic typhus as well.

4.12 Drainage

The effects of the drought do NOT disappear as soon as it rains; in fact many, like diarrhoeal disease, are exacerbated by rain: flies breed in the damp filth, and swollen streams and rivers carry pollution over wide areas.

4.12.1 Surface drainage

Ensure a good enough system to prevent surface water collecting on your site, and keep mud and dirt to a minimum.

A sloping site makes this much easier. SCF Kobo feeding programme had constant problems during rain because the site was so flat, like the whole of Kobo. We had to compensate by digging deeper drainage channels a long way into the fields.

4.12.2 Ditches

A drainage ditch along the top end of any site, however slight the slope, is essential to keep as much water as possible off the site. It should be 0.75m wide and deep, with straight sides.

Drainage ditches under the edges of roofed buildings, should lead water away from the buildings to a central drainage system, and in particular away from doorway areas.



4.12.2 Bulbulo 1985

Drainage ditch along the top end of a site dug to catch and divert rain water. What rain does fall can be very heavy. (Photo: Mike Wells)

Make gravel platforms for tents, and drain tented camps in the same way as buildings.

Dig roadside & pathside drainage throughout the site.

Keep all ditches clear; and check them when clouds gather.

4.12.3

Unblocking a soakaway ditch entrance to lead washing-up water away from the site.

(Photo: Mike Wells)

4.12.3 Soakaways

See 4.13.4



4.13 Sanitation and waste disposal

4.13.1 Site hygiene

This is as important to plan as food supplies. Avoid wasting food and effort by allowing people to get ill through lack of hygiene.

I. Before starting operations, discuss with all medical, feeding, services and administrative staff how to cooperate, especially by their example, to make sure

- all kitchen and feeding staff have clean hands at all times, and use the latrines properly
 - all beneficiaries and feeders keep as clean as possible, help keep the buildings and site clean, and use the latrines properly
2. Pave all standing areas where water is likely to gather and produce mud, eg. around taps. Make them into soakaways if they are also washing areas.
 3. Place half barrels of hand-washing water with soap strung on a post, and soakaways, at every door entrance and feeding hall entrance.
 4. Provide bathing areas, surrounded by fences for privacy, for live-in feeders, with soap available.
 5. For dry distribution beneficiaries, provide similar facilities for hand and eye washing.

4.13.2 Latrines

1. Dug or field?

Watch or find out what morning defaecation practices are. Highland farmers' families usually walk out to the fields; infants about the house are often held on their seated mothers' spread feet; cleaning is with leaves or stones.

Where latrines are dug, they **MUST** be kept clean: smelly ones will not be used. You will need to employ latrine guards to supervise their clean use. They should be adequately paid, well motivated and accorded sufficient status and respect to enforce clean latrine use easily.

If you can't provide clean latrines for large numbers, designate an area 500m from your feeding programme, and any housing, for morning defaecation. But guards must enforce that it is the **ONLY** area. In addition to this, you **MUST** provide dug latrines for all live-in feeders and in-patients. Make their use easier for young children by placing potties (po-po) around your area which can be emptied in a special pit, or the latrines, after use; enforce potty washing at special stands.

2. Latrine siting:

- downwind of any cooking, feeding, living space
- lower end of the site, but
- on raised ground
- with space stretching away from the site for digging new ones
- 30 metres from the water supply, or more. But strike a balance

between safeguarding the water supply and making sure the latrines are not so far away from the main site that sick people and others are discouraged from using them.

Discuss with the local MOH sanitarian how to use land available for latrines, soakaways and garbage disposal.

3. How many latrines?

As a guide: 20 people per latrine for live-in sites; and 100 per latrine for dry distribution centres

4. Trench vs. pit

The deep trench latrines normally dug in Ethiopian camps are dirtier, smellier and more likely to collapse than a row of pit latrines, however, they fill up less quickly. The sanitarian may well insist on trench latrines for large numbers of people in order to save constantly digging new pits. Your choice will be between:

- offering to employ a permanent gang of pit diggers, or
- if you have to have trench latrines, insist on a maximum width of 0.75 m. A reasonable single-row width is 50 cm. Insist on (eucalyptus pole) supports in the trench at 0.75 m intervals.

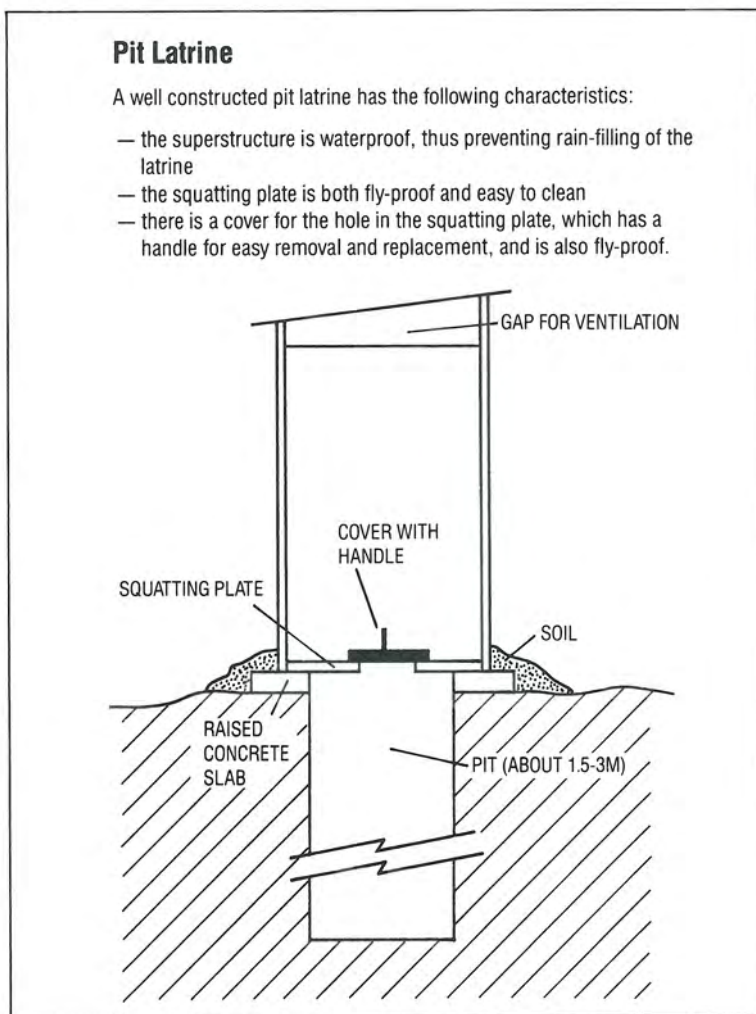
DISASTERS reference, section 6.1.4, gives details of suitable latrines and how to plan them. (See 1.3)

4.13.2 Bulbulo 1985
Trench latrine super-structure. The local building materials normally used are eucalyptus poles and corrugated iron sheeting.
(Photo: Mike Wells)



5. Pit latrines

- 1.5 m x 0.75 m hole
- max. 2 m deep; more encourages collapse
- covered by a concrete slab, or a squatting plate.
- with a LID FOR EACH HOLE



6. Children's trenches

SCF Kobo successfully satisfied requirements for hygiene and Ethiopian distaste for enclosed (smelly) latrines with children's trenches:

- open, 3 m+ long, about 30 cm wide, 50 cm deep

Mother sits on one side, with her feet spread apart and propped on the other, places the child between her feet, & chats to the others until the child has defaecated and they are ready to leave,

via the tap. Each time a mother leaves, a latrine guard stops digging the next trench alongside, and shovels earth over the faeces.



4.13.2.6 Kobo 1985

Small children prefer this kind of latrine, an adaptation of the traditional position their mothers use. The narrow trenches are dug and filled in as required.

(Photo: Mike Wells)

7. Planning the latrine area

Dig the first row STRAIGHT, parallel to the lower side of the site, 30 metres away. The next row will be at 50 m, the third at 70 m, etc. When you reach the bottom of the site, go back to 40 m, then to 60 m etc.

8. Digging

Erect the superstructure BEFORE digging starts, so that flooding is minimal if it rains.

Diggers must throw excavated material well clear of the sides of the pit or trench, to minimise risk of collapse.

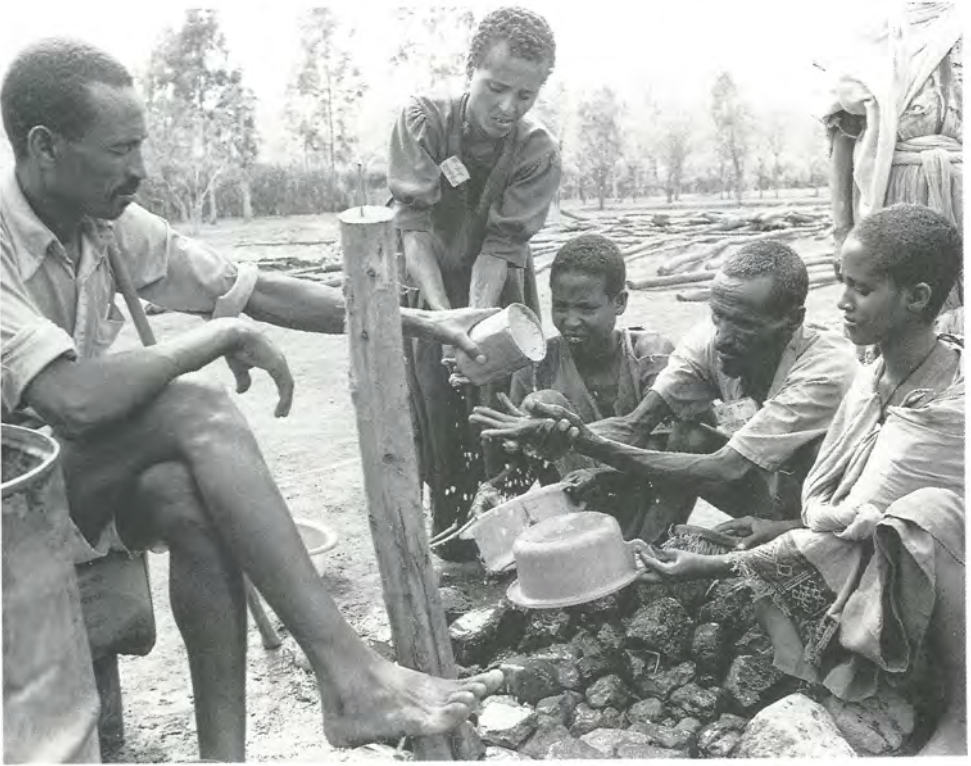
Keep a digging team permanently at work, so there is always a new latrine, 10 m away, to use when the last one fills up.

9. Gulpers

The alternative to a succession of latrines is to empty latrines regularly with a gulper - a truck with a sludge tank at the end of a large hose. These only exist in towns at present. As one gulper could service several feeding sites, importing some, or even one, would be a considerable service to MOH efforts to clean up rural and urban hygiene.

10. Hygiene

Have latrine guards supervise use of all latrines, especially by children, to minimise soiling of sides and edges, and ensure lids on pit latrines are replaced after use. Have latrines washed down at least once a day.



4.13.2.10 Kobo 1985

A hand washing guard intercepts all traffic between latrines and the site.

(Photo: Mike Wells)

Latrine guards and other staff should be taught about these hygiene measures and the reasons for them BEFORE starting work. They can help reinforce the hygiene lessons for the feeders. This applies to handwashing attendants and any gate guards responsible for checking hand-washing after latrine visits and before eating.

Provide paper, leaves, stones for wiping.

Remember that organising and giving instructions about using the latrines, and hand-washing afterwards, may be your only opportunity for providing some health education for recipients of dry rations. They should be taken and shown the latrines in small groups, and some effort made to explain why they should use them.

Provide hand and potty washing places, eg. a standpipe, or a constantly refilled barrel, each with its own soakaway and soap if available. It should be very close to the latrines or at the entrance to the feeding area, so that someone can check that people wash hands after visiting the latrines.

11. Flies

All pit latrines must have lids, and ventilation pipes if possible, to keep fly and mosquito breeding to a minimum. (You can also pour old engine oil down the latrines for this, but you will need a lot of oil to achieve the purpose.)

12. Po-po (potties)

Plastic potties (po-po) are readily available in towns. Have them available in several places for children to use in emergencies; but make sure there are strict rules about them being emptied and cleaned in a special place immediately after use.

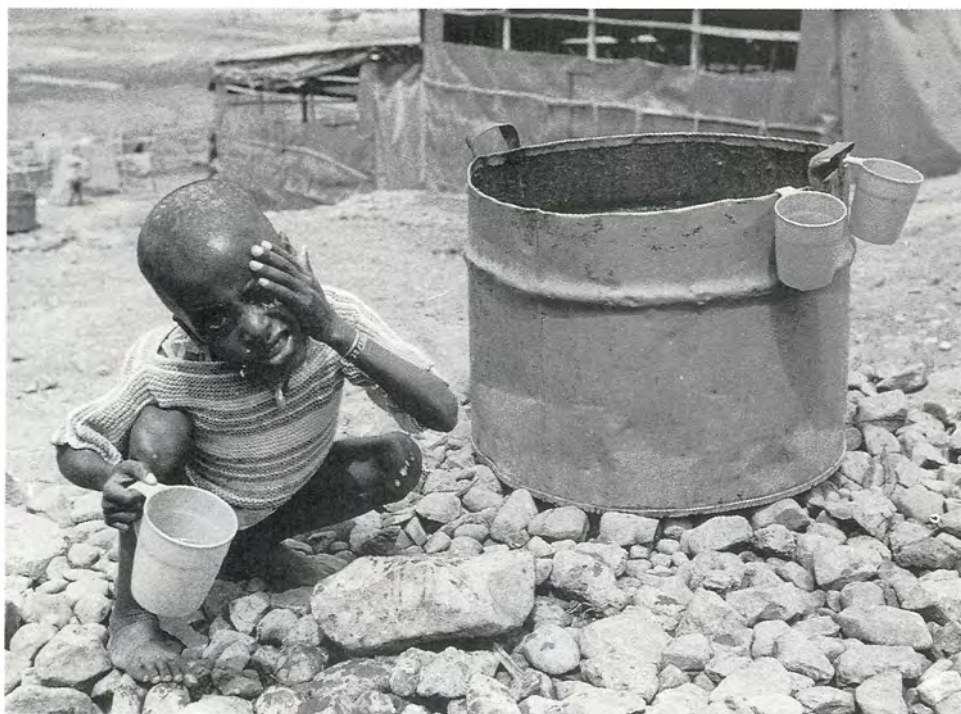
4.13.3 Water distribution & hand washing

4.13.3 Bulbulo 1985

Washing facilities, on soakaways, placed between feeding/living shelters, draining downhill.

(Photo: Mike Wells)

Arrange for water barrels in several places around the site. Dig stone soakaways 0.75 m diam. x 1.5 m deep around standpipes and water barrels.



For large camps an efficient handwashing system can be arranged by placing a length of 2.5 cm diameter pipe, with small holes drilled every 30 cm, at the entrance to each feeding hall. Children can then wash as they file past the dripping pipe.

4.13.4 Soakaways

All water-using service areas, with soakaways, should be at the lower end of the site, to make use of natural drainage.

One soakaway for each kitchen, washing & shower area, is the rule, on the lower side of the service area.

See 4.12.3

Making a soakaway:

- dig a hole approx. 3 x 3 x 2 metres
- fill with stones
- channel dirty water to it underground
- OR trench soakaway 1.5 m deep x 0.75 m wide (photo 4.12.4)

Start digging the next one as soon as the last one is ready for use; always keep one pit ahead.

4.13.5 Kitchens and washing-up

Designate a large, covered space for washing and stacking, at the bottom of the site, with easy access for food distributors to fetch cups etc. and deliver dirty ones.

4.13.5 Korem 1985
Washing-up area,
with wash, rinse, and
second rinse
sections.
(Photo: Mike Wells)



Dig your largest soakaway for the washing-up.

Use some of your precious cement to build a waist-high series of large sinks:

1. rough wash
2. soap wash
3. rinse
4. special rinse (during hepatitis, cholera etc)

4.13.6 Garbage disposal

- 3 x 3 x 2 metre pits
- never more than half full
- pour paraffin over and set fire occasionally
- dig another pit ready to take overflows
- when half full of residue, heap excavated material over it and use next pit.

4.13.7 Steaming and shaving

Children and relatives living on site must be kept as clean as possible, and must be kept separate from those who come and go every day.

Provide shaving and steaming areas.

Inspect all heads for lice infestation at registration. Provide mothers with infested children with razors to shave them and

4.13.7

Shaving, coordinated with clothes and blanket steaming, will reduce lice, and therewith the risk of typhus and relapsing fever.

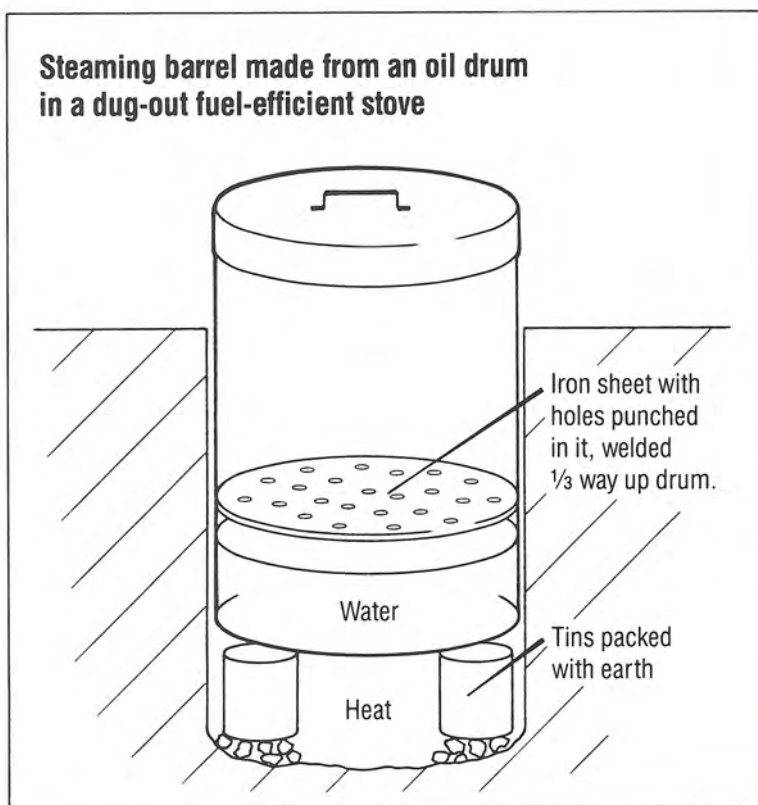
(Photo: Mike Wells)



themselves, in the designated areas. (Remember that people do shave themselves for lice as well as for bereavement, so do not find this distasteful).

Reduce lice and fleas by steaming body clothing for 15 minutes. This is best done at registration if feeders are going to live on the site. You will need:

- a steaming area, downwind of cooking and feeding areas, near the washing area, and adjacent to a clothes drying area.
- 4 x 200 litre drums for a 1000 camp, buried in the ground and lagged, all fired from below by a kerosene pressure burner, or wood.
- each barrel has a grid welded one-third of the way down it, for the clothes to lie on.



Fill the barrels one-quarter full of water, heat to boiling, put 20 people's clothing, or 10 blankets, into each barrel, push the lid on, and leave for 15 minutes. Keep the fire stoked. Remove and hang out to dry.

You may need to steam as often as once a month. Coordinate this with spraying. Empty one building at a time, and steam clothing while the spraying is done.

4.13.8 Spraying

Consult MOH and Ministry of Agriculture about:

- their experience of sprays and dosages
- any regulations you should be aware of
- availability through them of chemicals
- staff and equipment they can spare
(offer to supplement this)

Spraying with chemicals is a specialist activity: mosquitoes and flies in particular are difficult to control. This and the fact that the importing of chemicals is controlled by the government, make it imperative that you consult specialist expertise about spraying.

Spray MONTHLY all living areas of your site, especially:

- blankets
- buildings

in addition to steaming of louse-ridden clothing and head-shaving. This all requires some considerable organisation when you have more than about 100 people, so establish a monthly routine from the start.

SCF Korem found that DDT 10% does not kill local fleas and lice. We have however controlled louse-borne fevers by regular spraying of blankets and evacuated shelters with stronger insecticides, and regular clothes-steaming and shaving. We have imported ACTELLIC and used it and other chemicals in cooperation with MOH sanitarians.

MOH's malaria spraying teams and equipment have been used for this in Korem and elsewhere.

4.13.9 Disposal of dead bodies

Discuss with the local religious and administrative authorities what local customs and regulations are, and how you can best fit in with these. In highland Wollo, Amhara Christians see to funerals and burials in the churchyard or paupers' patch themselves.

In SCF child feeding programmes, we offer a shroud or half a blanket for the burial, in exchange for the return of the child's identity bracelet and number insert; any mother bereaved of a single child who has been living on-site for treatment is allowed to stay and help with the cleaning etc, in exchange for food, for max. one week.



4.13.9 Korem 1985

An Amhara funeral has just ended; the body will be taken and buried in the cemetery of the church in the background. (Photo: Mike Wells)

4.14 Road access

4.14.1 Local knowledge

Contact the regional ETCA (Ethiopian Transport Construction Authority), for information and advice about any extensions, repairs etc. you may need. They have maps, knowledge, expertise, equipment and materials which they can help you with.

4.14.2 Technical advice

- Keep access distances from roads to a minimum.
- Gradients should not exceed 10%
- Road widths - minimum 3 metres
- Loads - ask ETCA to check your road will bear the loads you expect to travel on it.

4.14.3 New Roads

- Max. gradient 10%
- Min. curve radius 30 m
- Min. road width 5 m
- Min. cross-fall 4%

Procedure (eg. by daily labourers under supervision) :

1. Sub Grade - remove all organic and soft material, and compact
2. Sub Base - layer of 10-20 cm diam. stones, usually from surrounding farmland
3. Base - another layer of 5-10 cm diam. stones, usually from same source, or ETCA

4.14.4 Roadside drainage

Rainfall can be very heavy, and frequently washes highland roads away.

DON'T forget to dig ditches as you improve/dig roads.

4.14.5 Cross-road drainage

This also needs planning *before* the rain.

"Irish fords" are probably the most practical, although it is possible to get reinforced concrete culverts.

4.14.6 Roadstone

Food for stones - provided there is regular distribution and people normally travel to the centre along or near what could be the bed of a useful road, arrange that the FA's are asked to carry some stones from the valley-sides onto a marked-out roadbed on the way to distribution.

Roadstone is otherwise available by arrangement with ETCA.

4.14.7 Equipment

ETCA will advise, even rent or lend. (see 4.16)

4.14.8 Maintenance

Don't forget it; ask ETCA for advice. See references in 1.3

4.15 Buildings

Buildings must provide:

- warmth
- shade
- protection from rain & wind
- ventilation
- enough space

4.15 Korem 1985

Plastic emergency shelter. Winter night temperatures drop to near freezing on this mountain plain. The hollows dug under each "tent" sleep 50.

(Photo: Mike Wells)

Ideally, you should build your main structures before you start any live-in feeding. If you have to start up in tents, make sure they are sited so that buildings can go up without disturbing the programme.



4.15.1 Siting

On slightly sloping ground, to allow for natural drainage. SCF Kobo feeding programme had constant problems during rain because the site was so flat.

Remember the wind:

- it should blow through living areas, then kitchens, and last of all latrines.
- angle roofs (20 degrees or more) to avoid losing them.

4.15.2 Space

Have defined areas for each activity, with some cover for shade and to keep off the rain.

SERVICE AREA	LAY-OUT NOTES
■ latrines	downwind; lower
■ showers & washing area	lower slope
■ steaming & shaving	lower slope
■ kitchens	lower slope
■ washing up	lower slope
■ feeding halls	near kitchens
■ live-in shelters	near feeding halls
■ stores, with truck access	near kitchens
■ staff tukul	in hailing distance
■ in-patient areas	periphery; nr. clinic
■ isolation area	periphery; nr. clinic
■ clinic & waiting area	near entrance
■ registration & weighing	next clinic
■ waiting area	outside entrance
■ office	central
■ car parking & turn-around	peripheral, nr. store

FENCE OFF ALL "STAFF-ONLY" AREAS

Plan for plenty of space between buildings. SCF Bulbulo was a bigger site than Kobo, and the extra space between buildings provided alternative spots for mothers and children to meet and play.

Provide minimum 1 square metre per person inside buildings designated for sleeping/living; half a square metre per person for feeding halls.

See 4.5.4 for suggested site layouts



4.15.3

Standard RRC structure can be varied for use as storage space, kitchens, feeding halls, living halls... Corrugated iron sheeting on eucalyptus poles.
(Photo: Mike Wells)

4.15.3 Structure

- central supports - 7-9 cm diam, every 3 m
- rest of framework - 3-5 cm diam
- no max. size, but internal head-high divisions, for max. 100 persons each, make large buildings more livable, and easier to apportion responsibilities to staff
- Walls: material suited to climate & ventilation
- Floors: in live-in areas, flatten and level, cover in plastic and keep clean
- Kitchens: combine ventilation with cleanliness
- Stove area: ventilation very important
- Clinic - see SCF Bulbulu for a well-drained, light & airy one, built of bamboo, roofed with corrugated iron.
- Emergency shelter - see photo 4.15

4.15.4 Wind, rain, sun, fire

Reminders

- corrugated iron for roofing
- roofs preferably centre-ridge, 2-pitch
- 20-degree slope to plastic roofs avoids collapse under rain
- roofs should overhang walls by 0.5-1.0 metre
- drains around buildings under overhang
- 0.5-1.0 m ventilation gap in walls under overhang

Firebreaks between buildings can double as stone-filled drainage ditches, but **MUST** be kept clear.

4.15.5 Materials

Use local materials. They will probably be easier to acquire and cheaper, and illustrate to local staff how they could do the same again another time.

SCF Kobo and Bulbulu broke this rule during the last half of 1984 when there was a national shortage of corrugated iron sheets. Since we were asked to make the shelters look as temporary as possible, to discourage a dependent shelter mentality among feeders, we used imported plastic sheeting instead of the locally-produced corrugated iron sheets for roofs and walls.

See 4.16

4.15.6 Tents

Lay a 10 cm thick gravel layer for all tents, with gullies for run-off. Dig drainage ditches around the platform. photo 4.15

4.15.7 Feeding halls

There should be an entrance/exit for every 250-500 feeders filing in and out. These should be at regular intervals down one side, or placed in some way that will allow you to section your feeders. Auxiliaries can be stationed at the entrances both for checking attendance as well as screening for fevers, scabies etc.