

Emergencies

A CAMP INSTALLATIONS

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Concentrations of people in areas such as camps create environments which favour the propagation of diseases such as malaria, plague and typhus, and where there is a high risk of epidemics (e.g. cholera and other diarrhoeas). The higher the population density, and the less adequate and numerous the sanitary installations, the higher the health risks (Table 17.I).

Table.I: Sanitary arrangements in a displaced-persons camp: infrastructure and layout to be planned depending on need.

Access to housing

Planning of the site, dwelling areas etc. (sanitary corridor, water points, access road)

Building of basic shelter

Distribution of building materials

Access to water

Transport by tanker and distribution via tapstands

Pumping and treatment of surface water in tanks, treatment and distribution via tapstands

Boreholes equipped with handpumps

Borehole equipped with a submersible pump with a distribution network

Wells

Gravity distribution system from a spring catchment

Distribution of jerrycans (1 per family)

Access to basic hygiene facilities

Latrines, showers, washing areas

Refuse pits

Vector control

Distribution of soap (approx 100 g/person/month)

Access to health services

Dispensaries, health centres

Access routes, fire-fighting, drainage etc.

Creation of access routes (tracks, paths, spaces between dwellings)

Firebreak

Site drainage

1 Selection and planning of sites

When there is a choice of site, its selection must take account of all the possibilities of water supply and environmental sanitation (rainwater drainage, digging of latrine pits, site access). All environments which present problems (swamps, steep slopes etc.) should be excluded from the selection. The type of water supply is critical in determining the final choice of site.

Small-capacity camps (several thousand people) are to be chosen in preference to structures of very high capacity. Depending on the resources available for creating the camp, and the essential needs identified, camp development is planned by phases.

1.1 Guidelines

These values are summarised in Table 17.II.

Table 17.II: Guidelines for planning camps (adapted from UNHCR 2003).

Guidelines	
Dwelling area	
Total area of the camp (including access and infrastructure, 45 m ² with small gardens included)	30 to 45 m ² /person
Dwelling area	3.5 to 5.5 m ² /person
Area per shelter (family)	14 to 30 m ²
<i>Distances to be maintained</i>	
Between dwelling areas	15 to 50 m
To the water point	100 m
To latrines or showers	50 m
Between shelters	2 m
Firebreaks	30 m wide, every 300 m

1.2 Layout plan

Figure 17.1 shows an example of a camp layout that includes the dwelling areas (shelters), access routes, water-supply and sanitation infrastructure (drainage, latrines, showers and washing areas).

2 Emergency shelters

The first need of displaced people is to find refuge for themselves and their families, especially in harsh winter climates or during the rainy season. Generally, public buildings are immediately requisitioned to receive homeless people. But their capacity is quickly limited or saturated, so the people must build themselves shelters as quickly as possible.

Humanitarian agencies are usually asked to distribute tents or plastic sheeting to provide protection from the elements. In certain cases, agencies may support the construction of temporary shelters for the most impoverished, or help in the rehabilitation of existing buildings.

An example of an emergency shelter is the model shown in Table 17.III and Figure 17.2, developed in Liberia. Built of wood and matting, the shelter can house up to 20 people (5 x 6 m). Other types of shelter are also appropriate when they can be made of local resources and materials (wood, mud, leaves, woven matting etc.).

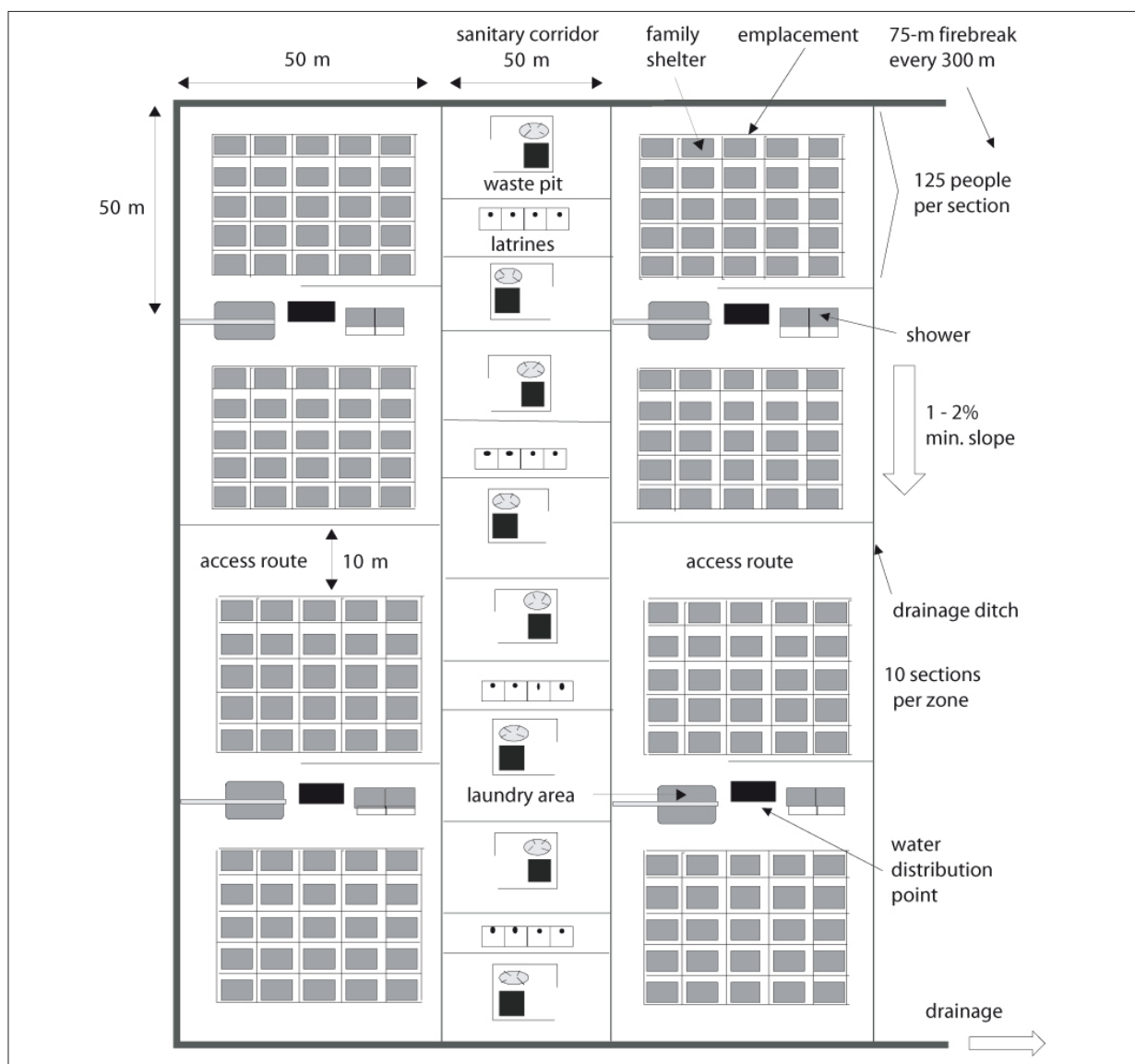


Figure 17.1: Layout plan of a camp (adapted from ACF, Rwanda, 1994).

Table 17.III: Characteristics and construction of emergency shelters for 20 people.

<i>Labour</i>	1 carpenter and 8 assistants for 6 days	
<i>Materials</i>	200 lengths of timber (3-m long, 0.07 to 0.15 m dia.) 10 to 12 kg nails 5, 8 and 10 cm 90 m ² plastic sheeting or matting	
<i>Tools</i>	6 shovels, 6 picks 6 carpenter's hammers, 1 spirit level	30 m cord (4 mm dia.) 4 bow saws
<i>Construction</i>	Marking out the site area with stakes, digging drainage channels around the shelter, digging holes for poles (depth 0.40 m), spreading and ramming the soil removed, setting up poles maintained by oblique struts, stiffening with horizontal wooden braces Roof construction with rafters every 20 cm in the direction of slope to avoid water pockets in case of rain (roof extending more than 0.50 m around the shelter), fixing plastic sheeting on roof and matting on walls	

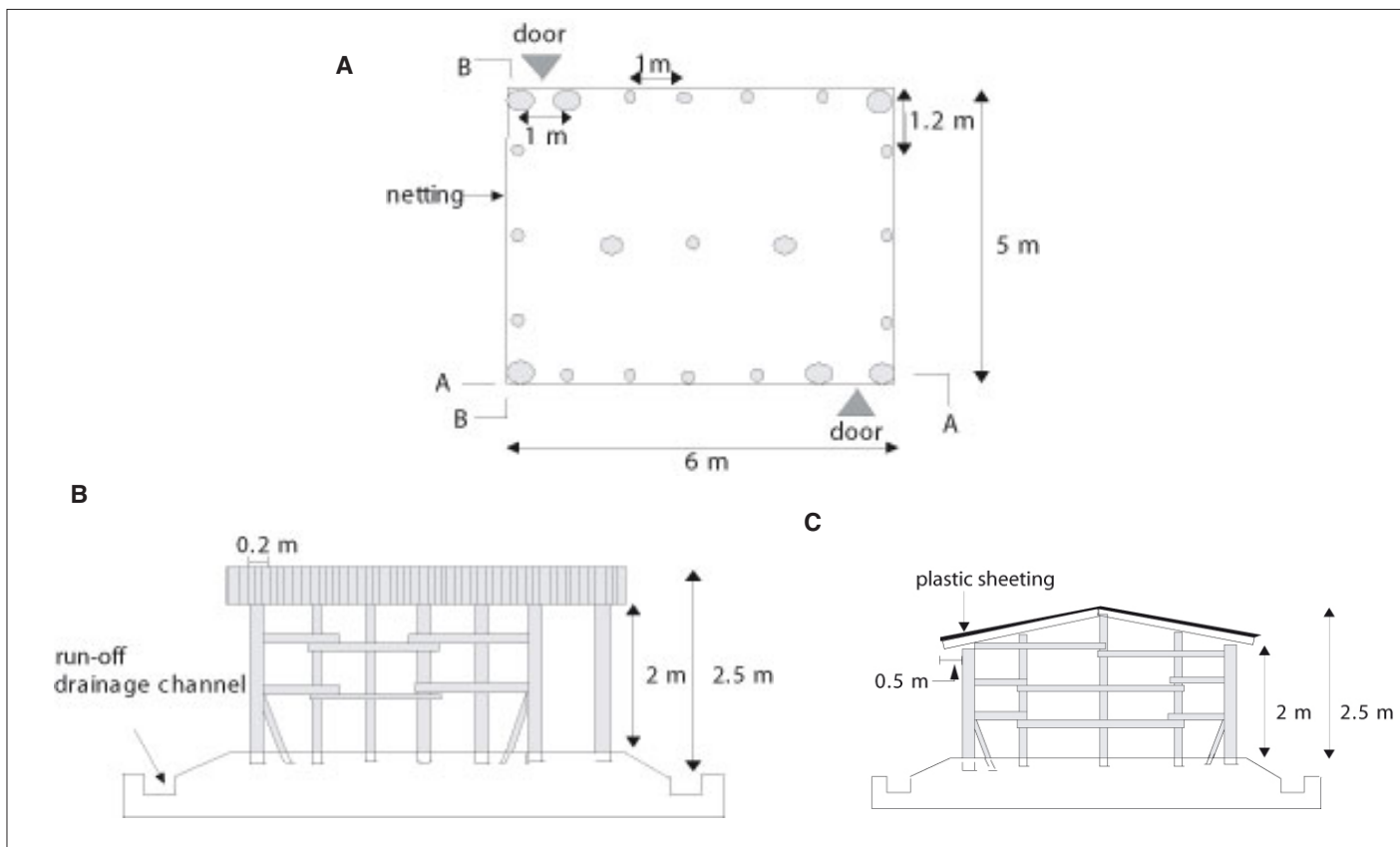


Figure 17.2: Plan of a collective emergency shelter (ACF, Liberia, 1994).
A: plan of shelter. B: section A-A. C: section B-B.

B WATER TRUCKING

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1 Introduction

Water trucking is a quick solution to provide water in situations where the distribution system fails or does not exist, and it is commonly used as a first response in emergency situations. Rehabilitation and construction works require time and resources and in some situations it is necessary to provide a faster solution until a longer-term water supply can be established or the emergency ends.

Water trucking is commonly used in situations where the water-supply system has been destroyed or severely damaged (due to conflicts or natural disasters), where water resources diminish (during droughts) or are contaminated (by floods or human activities), or in the case of displacement of people to a place with no water supply.

However, water trucking should be a temporary solution, considering that it provides a very fragile water supply (problem of access for trucks, risk of mechanical or human failure) and that it is expensive and unsustainable. Therefore, the exit strategy must be anticipated before the beginning of the water-trucking operation.

Exit strategies involve more sustainable solutions in many cases. They depend on the context, and the main scenarios should be anticipated. Criteria to end water trucking operations must be carefully defined from the beginning and respected in order to avoid any negative effects such as creation of dependency. This is especially important in cases where the exit strategy doesn't lead to the construction or rehabilitation of longer-term water supplies. For example, a water trucking operation was temporarily supported in an urban area of Haiti when the existing privatised water-trucking system was put into jeopardy as a result of drastically increasing oil prices caused by road blocks during floods. After the floods finished, and access was restored, stopping water trucking meant the return to the previous expensive water supply where people had to pay for their consumption. Some sectors of the community did not accept the decision and they demanded a continuation of the assistance. Objective criteria for intervention, defined from the beginning and clearly communicated to communities and authorities, facilitate the understanding of the termination of the water-trucking operation.

Other important aspects to consider in the exit strategies are the attitude of the authorities and the political decisions regarding future infrastructure development and settlement planning. In the case of displaced populations, where permanent infrastructure construction encourages people to settle, the exit strategy is a political decision that must be carefully discussed at local, national and international levels. In some cases, water trucking can be replaced by cheaper intermediate solutions (e.g. emergency distribution systems) that don't necessarily encourage permanent settlement.

An important point to be considered in planning water trucking programmes is the assessment and exploitation of the water resource. The usual water source is either a surface-water treatment works, or a groundwater pumping station from a borehole or well. In this case, the quantity abstracted must be compared to the exploitation flow, so as not to over-exploit the resource. Pumping tests are carried out if needed (see Chapter 6). Bacteriological and physicochemical analyses are always essential (see Chapter 4).

Note. – In some peri-urban areas, water is supplied by tankers or donkey carts from pumping stations or from the distribution system, resulting in high water prices and vulnerability of the supply.

2 The operation

Water trucking programmes involve the management of the water source, the transport of the water by the trucks and the distribution to specific points (temporary distribution points such as bladder tanks with tapstands, or local housing infrastructure such as household or public storage tanks).

One of the main problems is the availability of trucks and the management of their movements; in many situations water is distributed directly from the trucks, which wastes time and supply capacity. Setting up tanks and distribution points and planning the movement of the trucks are essential to optimise the system (see Chapter 16, Section 2.3.10).

2.1 Water tankers

The most commonly used are standard two-wheel drive tankers, usually around 8 000 l capacity, reserved exclusively for water transport. Truck characteristics and tanker volume should be considered with respect to the availability of trucks in the area and possible problems of access (for instance, heavy trucks can be blocked during the rainy season).

If there are not enough water tankers in the area, or if they are very expensive, it is possible to adapt normal flat-bed trucks with bladder tanks or rigid tanks if they are well fixed. Tanks specially designed for water transport are divided into compartments, to limit the displacement of the water and to ensure better stability.

Calculation of the cost of the trucking system is important for defining the programme: cost of the purchase or rent of the trucks, maintenance costs, fuel consumption, salaries of the driver and other people involved, and cost of the water (and treatment) if it is necessary to buy it.

Fuel consumption depends on the type and condition of the trucks, and on road conditions. It is normally between 25 and 30 l/100 km.

Optimising the capacity of the supply also requires a good estimation of the time required to supply an expected volume, and good planning of the truck trips. The numbers of trucks and daily round trips required depend on the distance to the site and refilling and emptying times. Average speeds can be between 20 and 50 km/h in areas with not very good access conditions.

Truck refilling time depends mainly on the flow of the pump used (about 30 to 60 min). If the truck is emptied into a tank with a motor pump, the emptying time depends on the pump and the volume of the water, but it can be short (less than 30 min). If the water is distributed by gravity directly from the truck, the distribution time depends on the diameter of the outlet and the volume of water, but can be much longer than with motor pumps (more than 2 h for 8 m³).

Hire contracts with truck owners must be drawn up with attention to detail, in particular with clauses which clearly identify the hire company's responsibility:

- hire of the vehicle itself, without mileage limits;
- wages of driver and assistant;
- insurance;
- maintenance of the truck and possibly supply of fuel and oil;
- responsibility in case of accident, fire or theft.

In addition to this, some special clauses may be added, such as the possibility of changing the driver if unsatisfactory, or replacing the truck in case of prolonged breakdown.

2.2 Distribution

2.2.1 DISTRIBUTION POINTS

Direct distribution by water tanker is to be avoided for obvious reasons, including long discharge times, poor hygiene, difficult crowd-control etc. It is indispensable to set up specific distribution points or use existing distribution systems.

Distribution points should be as close as possible to dwelling areas. The trucks must be able to manoeuvre without difficulty to supply the storage tanks. These tanks are connected to one or more tapstands (Talbot or self-closing taps are recommended to avoid losses), depending on the layout of the site.

Bladder tanks, with a capacity of 2 000 to 20 000 l, supplied directly by truck, or from a mini-distribution system (see Chapter 11B), are widely used for temporary storage, and may supply water for health centres, feeding centres or cholera treatment centres. The water distributed is disinfected directly in these tanks (see Chapter 12) or in the tanker (see Section 2.2). If water is to be treated by plain or assisted sedimentation in the tanks at the distribution points then onion tanks or OXFAM-type tanks should be used, rather than bladder tanks (see Chapter 12 Section 1.3).

It is advisable that bladder tanks (Figure 17.3 and Table 17.IV) have two inlets/outlets, each with a ball valve and a 50-mm coupling, as well as a 120-mm central opening. A water point is connected to the 50-mm distribution pipe from the tank.

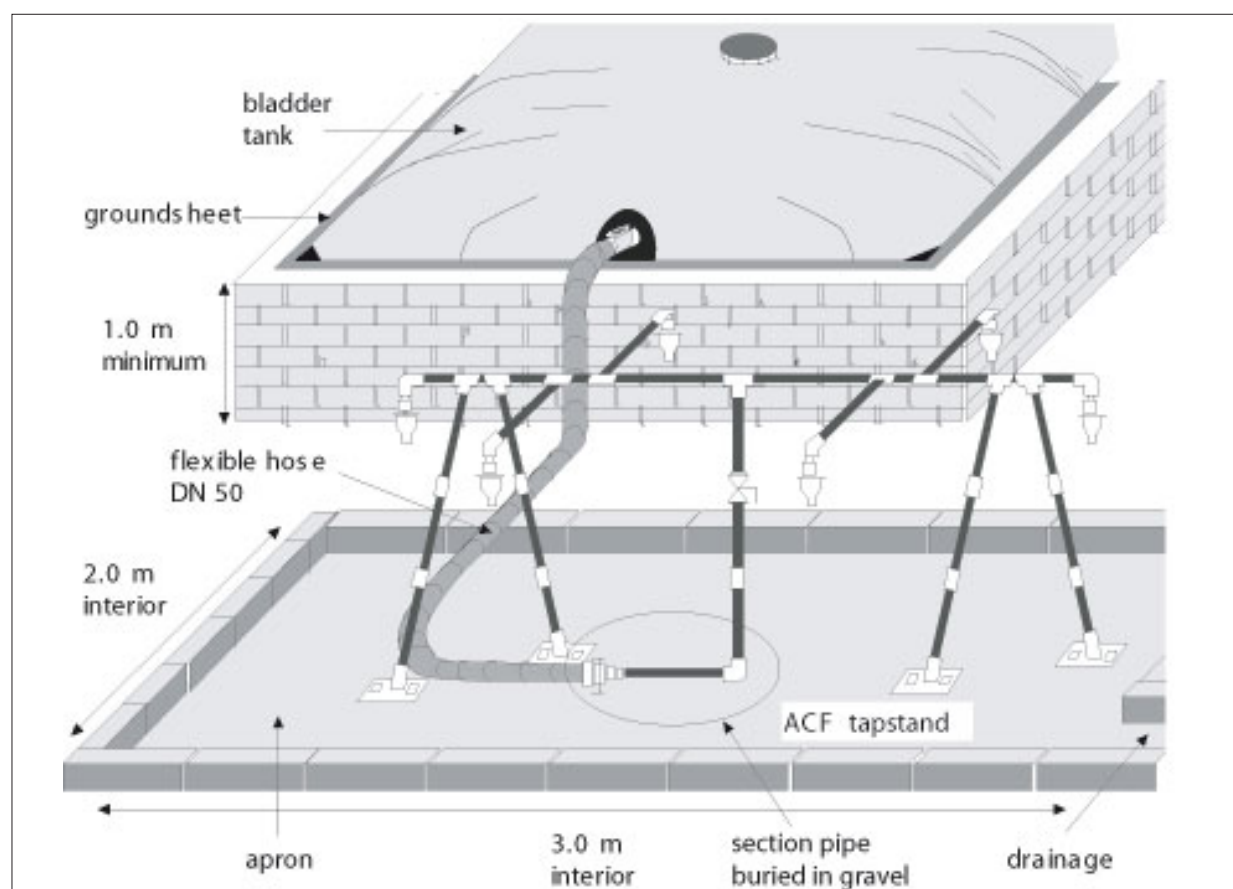


Figure 17.3: Flexible tank (bladder type) and tapstand.

Table 17.IV: Characteristics and cost of flexible water tanks (2004).

Item	Tank dimensions (m)	Cost (€)
Flexible tank kit- 2 000 l	2.85 x 2.00	650
Flexible tank kit – 5 000 l	4.00 x 3.00	1 345
Flexible tank kit – 10 000 l	5.10 x 3.00	950
Flexible tank kit – 20 000 l	7.50 x 4.00	1 300
Water point (tapstand kit)		270
50-mm semi-rigid pipe (heliflex, per 50 m)		300

The installation of the tank and water point requires a series of operations:

- choice of location: note that the tank should be higher than the tapstand (range of pressure for Talbot self-closing taps: 1 to 8 mWG);
- preparation of the ground for the water tank: perfectly level and clean (no gravel, rocks, roots etc.); a bed of sand may be necessary;
- laying an apron and drainage system for the tapstand;
- mounting the tapstand and fixing it to the apron.

Tapstands are available as kits (Figure 17.4), and can be assembled in several different configurations (numbers of taps from 1 to 6 etc.).

Water distribution also requires safe containers for the families to transport and store the water. Families should have at least two collection containers (10 to 20 litres) and sufficient storage recipients to have water at the household at all times. Containers must be easy to fill and seal, such as jerrycans. If necessary, jerrycans should be distributed; cleaning and disinfection of the containers should be promoted through hygiene education.

In emergency situations, the pressure of people around the water point quickly becomes difficult to control: access to the water point must be restricted and distribution must be controlled by a supervisor. Management of the supply is also presented in Chapter 16, Section 2.3.10.

Table 17.V: Contents of the ACF water-point kit.

Item	Ref. Figure 17.4A	Quantity
2" fire-hose connection	1	1
F/F 50/60 2" → 1" reducer	2	1
26/34 pipe threaded at both ends (m)	3	24
90° F/F 26/34 1" elbow	4	1
26/34 1" ball valve	5	1
F/F 26/34 1" socket	6	9
26/34 1" tee	7	7
M/M 26/34 1" nipple	8	2
F 26/34 → 1" M 20/27 3/4" reducer	9	6
20/27 3/4" Talbot tap with elbow	10	6
M 26/34 1" plug	11	2
Roll of PTFE tape	12	3
26/34 connection for base-plates	13	4
26/34 base-plate	14	4
F 26/34 1" plug	15	1
Hex spanner	16	1
18" pipe wrench	17	1

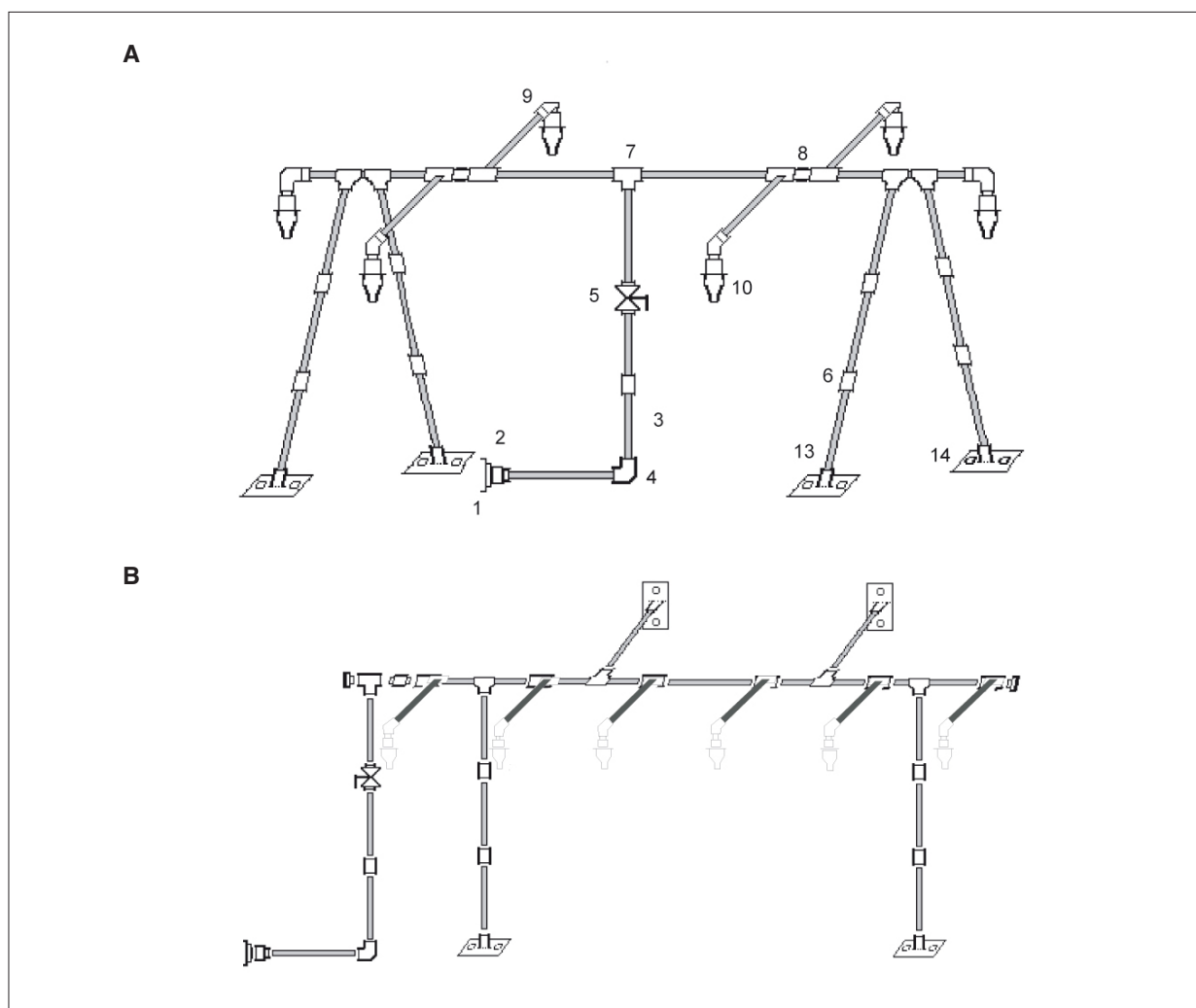


Figure 17.4: ACF tapstand kit.

A: standard installation. B: installation against a wall.

2.2.2 WATER DISINFECTION

Tankered water must always be chlorinated.

If the chlorination is done directly in the tanker while it is being refilled, the chlorine can act during transport (contact time > 30 min). Nevertheless, if the trip and the process of filling and emptying the truck tank takes much longer, protection provided by the residual chlorine will be less efficient. Another aspect is that chlorine is neutralised by iron, and chlorination is therefore not effective in a steel water tank not coated with food-grade paint.

Another possibility is to do the water disinfection and water quality control in the storage tank at the water distribution point.

3 Case studies

3.1 Water trucking in camps

This example concerns a refugee camp in Ethiopia (1992), without a water resource, and with a population of 10 000 people. The water had to be transported along 10 km of track from a borehole, while waiting for the extension of the distribution system from the nearest village.

Table 17.VI: Calculation of round-trip time and estimation of the number of trucks needed.

Refilling time	17 min
Journey time, borehole → camp	30 min
Emptying time	30 min
Journey time, camp → borehole	30 min
Round-trip time	107 min
30% downtime (breaks, refuelling)	30 min
Estimated duration	137 min (2.3 h)
Number of round trips per truck (12 h/day)	5
Volume of water transported per truck per day	5 x 5 000 l = 25 000 l
Number of water tankers required	180 000 l / 25 000 l = 7

Daily water demand was estimated at 150 m³ (15 l/person/day), plus 20% losses in the distribution system, making a total daily requirement of 180 m³. The water tankers had a capacity of 5 000 litres. At an average speed of 20 km/h, the journey took 30 min. The refilling time of the tanker at the pumping station depended on the flow of the borehole (5 l/s), while gravity emptying took 30 min via a 75-mm pipe (Table 17.VI).

Therefore, seven 5 000-l water tankers making 5 round trips each could supply (in an ideal situation) 15 l/person/day to 10 000 people. It is nevertheless advisable to hire a supplementary truck to cover possible problems (breakdowns, punctures, disagreements with the owner etc.). The water tankers empty into four 20 000-l tanks, which supply the emergency water-distribution systems. These consist of 2 - 3 tapstands equipped with 4 to 6 taps, each supplying 0.1 to 0.2 l/s.

3.2 Water trucking in rural areas (pastoral and agro-pastoral communities)

3.2.1 BACKGROUND

Korahai zone, in the Somali region of Ethiopia, is a semi-arid region inhabited by pastoral and agro-pastoral people (rearing camels, cows, sheep and goats), whose livelihoods depend directly on water availability. Yearly rainfall, between 300-400 mm, is divided in two seasons: *deyr* (October-December) and *gu* (April-June). Since the 1980s, the region has been affected by recurrent low rainfall and by periodic droughts (locally considered as the lack of two rainy seasons coupled with rainfall deficit in the Highlands). Consequently, the region has less and less perennial water resources. The water points are constituted by deep boreholes, shallow wells (< 20 m) and birkads (see Chapter 19, Figure 19.2B), plus surface water (temporary rivers and natural ponds).

When the rainfall is not good, the aquifers that are exploited by the shallow wells are not recharged and birkads empty quicker than normal.

When such an event occurs, the communities implement the coping mechanisms that, according to the level of water shortage and loss of livelihoods, consist of:

- movement of livestock to other water points;
- costly water trucking by private transporters (for people and small livestock);
- taking credits;
- search for new income sources;
- migration;
- change in dietary habits;
- charity and humanitarian assistance.

Trucking water to supply the birkads (sometimes in bladder tanks) is one solution to avoid the total loss of assets for many people. But at the same time water trucking has negative side effects that must be taken into consideration before deciding on any intervention.

The risks are:

- breaking coping mechanisms;
- fixing populations in places where the natural water resources don't match needs;
- creating dependency on humanitarian intervention;
- developing a system that is locally driven by commercial operators and that excludes the poorest families;
- displacing the population to the distributions sites.

On the other hand, each year, during the dry season, people suffer from a level of water stress that could justify an intervention. But assuming that water trucking is an emergency response that can't be implemented each year, clear indicators must be defined in order to decide on the beginning of the intervention and its end. These indicators, linked to rainfall and economic parameters, are not easy to define objectively and are not always understood and accepted by the authorities and communities concerned.

3.2.2 ANALYSIS OF THE SITUATION

In February 2004, the first indicators of the crisis were:

- the previous rains (Deyr) were two months late and very insufficient;
- the Faffen seasonal river had a limited flow, not allowing any agricultural activities in the agro-pastoral areas in Korahai district;
- most of the birkads were emptied earlier than usual;
- the yield in wells were abnormally low and water salinity increased;
- 3 of the 10 borehole-pumping stations existing in Korahai district were not functioning;
- costly private water trucking, implemented sooner than usual, was the only source of water in most of the areas depending on birkads;
- the pasture was poor and therefore there were concentrations of livestock in better pastures, leading to over exploitation;
- denial of “water credit”^{*};
- animal mortality was increasing;
- solidarity mechanisms broke down;
- a destocking process began;
- livestock prices in the markets went down.

In this context, ACF-Ethiopia decided to do deeper assessments in order to design a water-trucking intervention.

3.2.3 IDENTIFICATION OF VILLAGES

The targeted villages were selected according to the requests received from the local authorities and communities that ACF cross-checked through field assessments. These assessments collect two kinds of information, regarding the lack of water resource and regarding the economic situation. Intervention is decided on only when the scarcity of water generates (or can generate) disruption of livelihoods. The following information is gathered:

- rains (as rains are sporadic, really local assessments must be undertaken);
- productivity of existing water points (capacity, distance, pumping system etc.);
- current water-trucking operations;

^{*} Water credit is a coping mechanism often used for poor households in a normal year. But water credit starts to fail when the lenders see that the credit can not be reimbursed. A normal price to sell water in dry times is 2 birrs for 20 litres. For a household of 10 members, also providing water for a minimum part of the family's livestock, the credit could very high at the end of a drought period.

- type and state of economic activities (pastoralism, agriculture, business etc.);
- coping mechanisms developed (e.g. destocking, migration etc.);
- number of families and number of people present in the villages or camps;
- degree of settlement (customs and capacity to move);
- infrastructure (hospital, schools, markets etc.)

After the assessment, the degree of emergency and the water needs of each place visited are defined. Before starting water trucking in a village, there is a meeting with community leaders to draw up and sign terms of understanding. In the community, a committee is created to receive and manage the water.

3.2.4 ESTIMATION OF WATER NEEDS

The criteria to estimate the needs are complicated because of population displacement. They include both domestic and livestock needs.

Several assumptions are used for the estimation.

Population

- Number of houses = number of households.
- One household = 10 members (according to the 1994 national census).
- The minimum water supply in such situations = 10 litres per person per day (according to ACF standards, in Kebri Dehar).

Livestock

Since the start of the crisis, pastoralists moved with their camels, that can walk 8 to 10 days without drinking, to perennial water points (usually boreholes). The remaining livestock attached to the household in the targeted water scarcity areas are to be supplied through water trucking. This remaining livestock is mainly composed of weak, pregnant and lactating animals. Thus, the programme intends to provide water to the families for watering animals in order to limit loss of livestock and maintain milk production directly used by the family.

The Somali Livestock Unit (SLU) is used to estimate the daily water consumption of the livestock in a dry time:

- sheep: 10 l every 3 days = 3 l/d;
- goat: 15 l every 5 days = 3 l/d;
- donkey: 20 l every 2 days = 10 l/d;
- cattle: 40 l every 2 days = 20 l/d;
- camel: 160 l every 8 days = 20 l/d (camels will drink at perennial water points).

One SLU consumes 20 litres of water per day. Thus, 1 SLU corresponds to: 1 camel = 1 cow = 2 donkeys = 6.5 sheep/goats.

According to the 'Household Baseline Food Economy Survey in Korahai zone (ACF 2001)', the mean livestock for a 'very poor' pastoral household is estimated to be 5.5 SLU (an average of 2 cows, 1 donkey and 20 sheep and goats). The mean livestock for a 'very poor' agro-pastoral household is estimated to be 3.75 SLU (average of 1 cow, 1 donkey and 15 sheep and goats). The small and medium villages are considered as pastoral (animals being the only source of income) and the big villages as agro-pastoral or semi-pastoral (with agriculture, food-distribution points and business providing other incomes).

In conclusion, it is estimated that:

- one pastoral household needs a minimum of 210 litres/person/day;
- one agro-pastoral or semi-pastoral household needs 175 litres/person/day.

During the implementation phase, monitoring allows identification of errors in the estimations or particularities of a village and adjustment of the quantities of water to be delivered.

3.2.1 IMPLEMENTATION

3.2.1.1 The trucks

During full programme implementation, 15 trucks were supplying 244 m³ per day to 27 villages, covering an 88% of the estimated needs, taking water from 4 boreholes.

The trucks drive a mean of 160 km/day. The prices are: 55 €/day for the small trucks (6 m³) and 130 €/day for the big trucks (20 m³). From checking several trucks filling the fuel tanks before and after the trip, consumption was estimated to be 35 l/100km for small trucks and 45 l/100km for big trucks (Table 17.VII). Difficult sandy roads and trucks in bad conditions explain this high consumption.

Table 17.VII: Water trucking cost.

	Water supplied (l)	Truck rental (€/day)	km	Consumption (l/km)	Fuel cost (€/l)	Total water coast (€/l)
Small truck	6 000	55	160	0.35	0.4	0.0129
Big truck	20 000	130	160	0.45	0.4	0.00794

Note. – These prices don't represent the full cost of the water because staff were provided for free.

Specific unexpected problems occurred:

- clan conflicts limited access;
- the owners of cemented Birkads sold the water supplied;
- the Water Bureau tried to make a profit from water supplied from boreholes;
- armed groups and soldiers stopped the trucks and asked for water.

3.2.1.1 Tools

Several tools have been developed to manage the water-trucking activity:

- a memorandum of understanding (two copies);
- a form to monitor the water supply, recording: date, village, water supplied, fuel consumption, driver's signature, ACF monitor's signature, water committee's signature and water remaining from the previous supply (see Table 17.IX);
- a form with names and roles for the members of the committee and management rules;
- a interactive 'Excel' workbook to monitor and update the water-trucking programme (see Table 17.VIII);
- a map with all GPS coordinates.

3.2.1.2 Monitoring and end of operation

Every delivery is followed by an ACF monitor (see Table 17.IX), who fills in the forms and reports any problem. In this way, the quantity of water to be delivered can be adjusted and any other specific problems can be identified (e.g. new movements of population).

In the case of a problem, the supervisor visits the village. Particular attention is paid to migration caused by the water trucking and to bad water management (selling of water).

Because rainfall is the main water source for pastoral and agro-pastoral communities, the end of the operation will obviously be linked to the return of normal rainfall. When rainfall is sufficient to fill the birkads and the natural ponds and to recharge superficial aquifers, water trucking must be stopped even if people lobby for it to continue.

Table 17.VIII: Needs coverage table.

Site	Distance from borehole (km) (km)	Estimated number of houses	Estimated people supplied	Estimated SLU supplied	Estimated needs m ³ /day	Supplied water m ³ /day	Estimated needs coverage	Monitoring
Balawiririi	30	15	150	82.5	3.2	3.1	99%	
Karsoni	25	25	250	137.5	5.3	6.3	119%	To check
Xodayle	30	10	100	55	2.1	3.1	149%	Monitoring observed that water was finished before foreseen, because of migration Water supplied has been increased by 50% from previous estimation
Maracaato	30	200	2 000	750	35.0	33.0	94%	
Karambicile	25	15	150	82.5	3.2	3.0	95%	
Fooljex	40	10	100	55	2.1	1.5	71%	To check
Jiic	50	25	250	137.5	5.3	5.5	105%	
Gabo Gabo	75	180	1 800	675	31.5	26.7	85%	To check
Landher	62	45	450	247.5	9.5	9.4	99%	
Toonceley	85	25	250	137.5	5.3	5.5	105%	
Farmadow	92	100	1 000	375	17.5	16.8	96%	
Higloleey	60	150	1 500	825	31.5	19.7	62%	Monitoring observed that water was remaining from last supply because some salty wells are used to water animals Water supplied has been decreased from first estimation
...	...	...	...	...	...	...	...	
Direct beneficiaries			14 500	6 610	277	244	88%	

Note. – In the Afar region of Ethiopia, ACF implemented a water-trucking operation in 2002. Monitoring confirms the observation that water consumption from the bladders supplied by trucks was higher when the rains returned because people considered that they were no longer dependent on this water resource, and consequently they consumed it with less precaution. ACF was in the paradoxical situation of stopping the delivering water when consumption was at its highest, because water delivered was creating an artificial comfort that could have created dependency. This decision was difficult to accept locally, particularly because other actors went on assisting the population.

Table 17.IX: Monitoring file.

Truck			Owner							
Date	Village supplied	Borehole supplying	Litres of water	Litres of fuel for truck	Litres of fuel for generator	Driver's signature	ACF monitor's signature	Committee's signature	Water remaining	Comments