



## Health Emergencies

# Sanitary Guidelines for Camps and Settlements

"Sanitation" is defined in this guide as all activities involved in proper water supply management and excreta and solid waste disposal.

Mounting a sanitation system in shelters and camps must not only involve the use of simple engineering techniques but consider social and cultural factors at the site of the intervention as well as the costs.

It is important to establish the necessary coordination with the institutions responsible for basic sanitation (municipios, civil defense, ministry of health, water and sewerage companies, and others).

It is essential that a rapid assessment of the situation be conducted to establish a sanitation assistance plan. Below is a breakdown of activities that must be implemented in the plan.

## 1. Water

Water quality is important for preventing the spread of disease--i.e. diarrheal disease, parasitic infections, typhoid fever, and epidemics, such as cholera, that affect the health of the population. The microorganisms that cause these illnesses are transmitted by the oral-fecal route, either directly or through water (including ice), milk, food, or hands contaminated with excreta. Vectors (insects, rodents, etc.) can also play an active role in this process.

### 1.1. What to do

#### 1.1.1 If there is a regular supply of water:

- Test water quality (for example through a residual chlorine or bacteriological quality analysis).
- If the water quality is not adequate, install a disinfection system.

#### 1.1.2. If there is no regular supply of water:

- Test the quality of the water that arrives by truck or tanker (residual chlorine, bacteriological quality).
- If the water quality is not adequate, install a disinfection system, as indicated above.



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- If the shelter has water storage containers, check their quality and condition and ensure that they have sufficient capacity for the number of persons in the shelter (calculate 20 l/h/d).
- If the shelter does not have water storage containers, prepare some type of tank that can store water (tanks made of PVC, fiberglass, or asbestos-cement). They must be clean, have no cracks, and have a cover.
- Ensure that people keep their water in clean bottles with a small covered opening. Clean water could become contaminated again if not stored properly.

### 1.1.3. In both cases:

- One person should be appointed to disinfect the water in the shelter and control the process.
- The population should be given materials with simple instructions on:
  - The need to test the quality of the water before using it.
  - Use of disinfected water for drinking; washing vegetables, fruit, and cooking utensils; brushing teeth; and washing hands.
  - The danger of storing water in containers that are dirty, uncovered, or in poor condition.
  - The importance of preventing human and animal excrement, refuse, and domestic and industrial wastewater from coming into contact with raw or safe well water, spring water, or water from other sources. Also, prevent dirty hands or dirt in general from contaminating water stored for human consumption.

### 1.2. Water disinfection system:

Simple procedures for disinfecting water:

- If the water is cloudy, first use homemade or other filters to eliminate the cloudiness.
- Bring the water to a rolling boil for one minute up to a maximum of three minutes.
- Or, as an alternative, treat the water with disinfectants such as chlorine (bleach), iodine, silver etc., ensuring appropriate residual concentrations (chlorine 1-2 ppm, silver 100 ppb, iodine 1 ppm).

### 1.3. What not to do

- Request equipment or supplies (quantity, quality, and technical specifications) without first assessing the situation.
- Try to install sophisticated water treatment technology.
- Suggest a set dosage, without knowing the concentration of the disinfectant.



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## 2. Excreta

Improper excreta disposal contaminates soil and water sources. It also often serves as a breeding ground for certain species of flies and mosquitoes, giving them the opportunity to lay their eggs and multiply or to feed and transmit the infection. It also attracts domestic animals and rodents who carry fecal matter on them and with it, potential diseases. Furthermore, this situation usually creates unsightly areas and disagreeable odors.

Bacteria, parasites, and worms that live in excrement cause disease, such as diarrheal diseases, intestinal parasitic infections, hepatitis, and typhoid fever. Use of sanitation services protects health, prevents disease, and protects surface and ground water.

The goal of sanitary excreta disposal is to isolate excrement so the infectious agents in it cannot reach a new host. The method selected for a given area or region will depend on many factors, including local geology and hydrogeology, the communities' culture and preferences, the materials available locally, and the cost.

### 2.1 What to do

- If there are no sanitation services, latrines must be built (individual, collective, portable)
- Before installing a latrine, the soil at the site must be evaluated along with topographical conditions, user access, and the presence of surface and ground water in the surrounding area.
- If the land is not appropriate for latrine construction (rocky soil or high water table) aboveground latrines with removable tanks must be built. The excreta must be transported to a pit located on appropriate ground, for immediate burial.
- Estimate the number of latrines to be installed, based on the number of persons in the shelter (1 waterless toilet/25 women and 1 waterless toilet and 1 urinal/35 men).
- Provide information and instruction to the population on:
  - Throwing used toilet paper into the latrine.
  - Using the sanitation services only for defecating or urinating (do not store tools or other items in the latrine)
  - Washing their hands with soap and water after urinating or defecating.
  - Keeping the floor, walls, and area surrounding the latrine clean.
  - Not defecating or urinating outdoors in the area around the sanitation services or near bodies of water, since this encourages the proliferation of flies and larvae and water contamination through water runoff.

### 2.2 What not to do

- Install excreta disposal systems without first assessing the situation (existence of sanitation services, number of users, and characteristics of the site, among others)



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- Select the location of the sanitation services without taking into account the characteristics of the site (soil type, topography, accessibility, presence of bodies of water, etc.)
- Try to implement sophisticated excreta disposal technologies.

### 3. Solid waste

Solid waste may be refuse, manure, or animal cadavers. There is a correlation between improper solid waste disposal and the incidence of vector-borne diseases. As a result, arrangements must be made to collect, store, and dispose of refuse and manure.

#### 3.1 What to do

- Assess the situation, considering the number of people in the shelter, existing services, collection service, topographic conditions, accessibility, and soil type (if the waste must be disposed of on site).
- Estimate the quantity, type, and capacity of the water storage containers, based on the number of persons and existing services. For a short time, empty food containers, plastic or water-resistant paper bags, and disposable packaging can be used. The capacity of the containers should be 50-100 liters and should not exceed 20-25 kg when full.
- Provide three or four containers per 100 persons and distribute them so that every family has access to a container (or plastic bag).
- The containers should not touch the ground, for example they should be on a wooden platform. They must be emptied and washed daily.
- If there is regular waste collection and final disposal service:
  - Coordinate with the responsible entity to cover refuse collection from the shelter or camp.
  - Check the accessibility of the regular collection service and take the appropriate steps for the shelter or camp.
  - If the regular service does not have access to the shelter or camp, place waste pick-up sites in the surrounding area and locate storage bins or containers away from water sources.
- If there is no regular waste collection and final disposal service:
  - Organize collection, transport, and final waste disposal service, involving the persons living in the shelter or camp.
  - For final disposal, bury the waste by building pits 1.5 meters wide, 1.5 meters long, and 2 meters deep. At the end of each day, cover the refuse with 15 cm of dirt and pack it down. This pit will last 10 days for a population of 200. For larger populations, increase pit size proportionately, up to a maximum of 3 meters x 3 meters. Before the pit is full, cover it with a layer of packed dirt 40 cm thick, so that it is level with the ground. Then dig a new pit.
- Recommendations for managing medical waste:
  - Separate common, hazardous, and sharp waste, preferably in strong containers with plastic covers.
  - Dispose of common waste in the pit described above or other similar ones.



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- Hazardous waste will be destroyed in a homemade incinerator that can be built using a fuel drum that must have a ventilation hole on the bottom. Inside there must be a grill to hold the waste. The ashes will be disposed of in the pit for common waste.
  - Sharp waste will be disposed of in a hole or pit with 1 m<sup>3</sup> capacity, covered with a heavy concrete slab. A tube 2 inches in diameter will run through the slab and extend roughly 1.5 meters above it. The tube will be used for depositing needles and surgical blades without syringes or venoclysis tubes.
- Dead animals and excrement from domestic animals must be buried immediately, since they can be a source of contamination.
  - Provide information and training to the population on sanitary refuse handling.

### 3.2. What not to do

- Request tools, containers, bins, plastic containers or other devices without first assessing the situation.
- Mix common waste with medical waste, thus endangering the population.
- Accept or request sophisticated technology for treating medical waste without having the facilities or trained personnel to operate it.

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