

Water for the World



Water Treatment in Emergencies Technical Note No. RWS. 3.D.5

The treatment of water supplies in emergency situations is important to protect people's health. When natural disasters, drought, or social unrest cause a loss of supply of potable water or when, for any other reason, a water supply is disrupted or a supply change is necessary, measures should be taken quickly to provide for a safe water supply.

This technical note discusses the use of several methods for emergency water treatment. Many are similar to simple household purification methods which are described in "Designing Basic Household Water Treatment Systems," RWS.3.D.1. Community members should be instructed in the best methods to use to make water potable during emergencies. Read the entire technical note to evaluate the type of treatment most appropriate to local circumstances.

The design process for emergency water treatment should result in a list of materials needed to provide the appropriate disinfection of water during the time potable supplies are cut off. A sample list for a water boiler appears in Table 1. A list of sources of chlorine and their strengths is in Table 2.

Table 1. Sample Materials List for Boiler System

Item	Description	Quantity	Estimated Cost
Labor	Emergency workers	—	—
	Unskilled labor	—	—
Supplies	200-liter steel drum	—	—
	20m pipe nipple	—	—
	Valve	—	—
	Large funnel	—	—
	Cement blocks or bricks	—	—
	Filler plug	—	—
Tools	Solder	—	—
	Drill or punch	—	—

Total Estimated Cost = —

Useful Definitions

CLARIFICATION - The process of removing suspended matter and other forms of turbidity from water.

CONTAMINANT - An impurity which makes water unfit for human consumption or domestic use.

DISINFECTION - Destruction of harmful microorganisms present in water through physical (such as boiling) or chemical (such as chlorination) means.

TURBIDITY - Cloudiness in water caused by particles of suspended matter.

When dealing with a disruption in the water supply, the major effort should to go toward getting the system back into operation as quickly as possible. Until operation can begin again, emergency treatment measures should be undertaken.

Usually a source of water that must be used in an emergency is contaminated. Therefore, the water should be disinfected before people drink it. Various methods are available for disinfection during emergencies. The choice of methods will depend on the resources available in each community or region.

Boiling

Boiling destroys all forms of disease organisms in water. It can be used whether water is clear or turbid and even if it contains a large amount of organic matter. For boiling to be effective, water must be brought to a rolling boil; that is, the water must be bubbling rapidly. Boiling water to disinfect it is a very good method of disinfection if fuel is available to heat the water. Individuals can boil