

WHO Recommendation for Water Treatment Methods

(source: http://apps.who.int/iris/bitstream/10665/96340/1/9241546166_eng.pdf)

Storage	Storage is the simplest method of improving water quality. If water is stored in a covered tank for a period of time, pathogenic bacteria die off and sink to the bottom by a simple sedimentation process. Two days is the minimum length of storage recommended. The water will not necessarily be totally free of contamination by simple filtration. Storage tanks require cleaning and desludging at regular intervals, depending on the level of sediment in the water. Algal build up should be prevented. No animals or unauthorized persons should be allowed access to the tanks.
Aeration	Aeration is achieved by allowing the water to cascade over layers of gravel. Aeration may be required if iron or manganese is present in the water, because they give an unpleasant taste and a brownish discoloration to food and clothes.
Sedimentation	Water from river sources, especially in the rainy season, often has a high silt content. Simple storage methods are not sufficient for this silt to settle. Along with the natural sedimentation process, the addition of a chemical coagulant, usually aluminum sulfate (alum), is necessary. The amount of alum needed depends on the amount of suspended matter in the water, the turbidity, the pH, and the hardness of the water. Effluent water should not contain a concentration of alum greater than the guideline figure given in the WHO guidelines for drinking water quality.
Filtration	Slow and rapid sand filters may be used.
Disinfection	Chlorine is the most common and effective disinfecting solution in emergency situations, and various dilutions are used in different situations (see the previous Table). The amount of chlorine required depends on the quantity of organic matter and of harmful organisms in the water. The dose should leave a residual level of chlorine of between 0.2 and 0.5 mg/liter (a higher level will leave a taste and people will not drink the water). A simple drip-feed tank can be designed to administer the correct amount of chlorine.

