Unit 4 : Water Quality

Chapter 2 : How to maintain the quality of water?

Let's Tell

What are the available sources of water?

The available sources of water can be stated as follows.

1. Running water in a river or canal, rivulet
2. Water in dam
3. Water from natural ponds
4. Groundwater

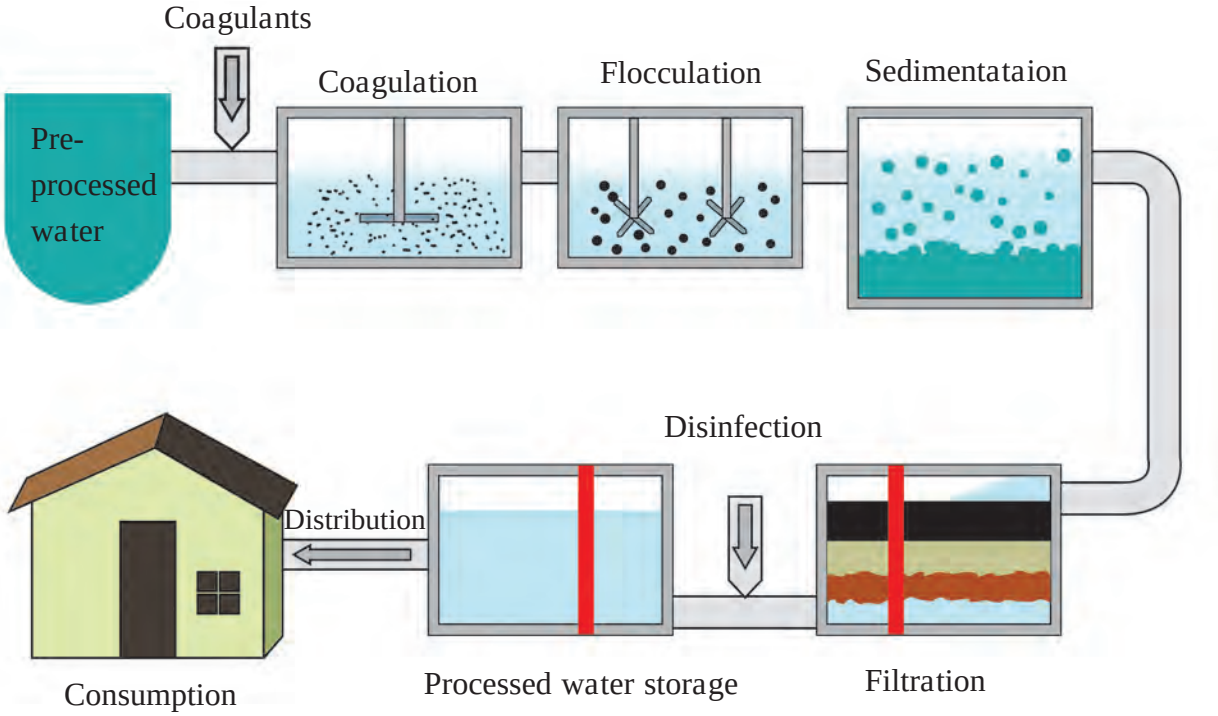
Many substances are mixed in the water available in nature. Eg. Before reaching the ground, rainwater mixes with solids such as dust, bacteria, pollen and gases like carbon dioxide, oxygen etc.

As it flows over the soil, the substances on it enter the water. Water which seeps into the soil, dissolves the organic and inorganic substances in the soil in it.

Maintain quality of water

Water is classified by considering all the factors. The water that comes to you is purified as follows.

1. Removing floating substances
2. Settling down the sludge
3. Softening the water if necessary
4. Filtration
5. Sterilize with chlorine gas.

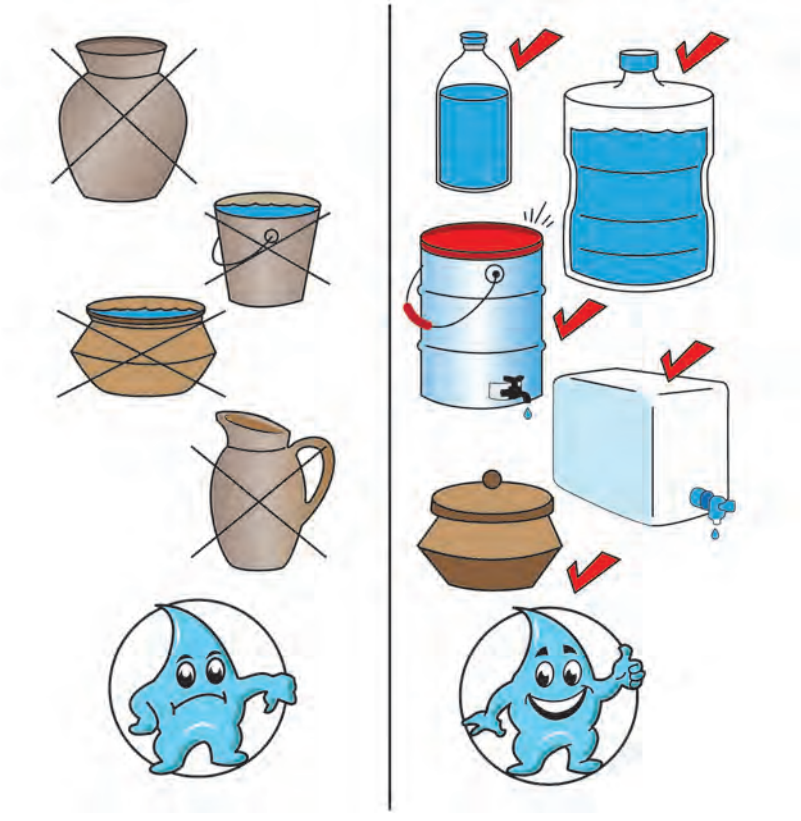


4.2.1 Purification of water

Clear-looking water can contain invisible pathogens. Water can be contaminated by bacteria, germs and viruses. Drinking contaminated water can cause different diseases. Diseases like typhoid, cholera, jaundice, dysentery, diarrhea, gastroenteritis are on the rise, so the water must be pure. For this, regular disinfection of water is essential. Chlorination is an easy way to disinfect. Chlorination in the form of bleaching powder is also done. This kills germs and viruses and makes pure water easily available. Bleaching powder (Also known as TCL powder) is manufactured by mixing chlorine gas in lime by machine. Fresh bleaching powder should contain more than 33% chlorine. To maintain this amount of chlorine, it is essential to keep bleaching powder in a sealed container, in a closed bag but in a dry place. If this type of care is not taken properly, the chlorine gas in the bleaching powder is released into the air over time and the disinfection power of the powder weakens.

Bleaching powder with no chlorine is inadvertently used for disinfection, but the expected purification does not take place. That is why O.T. test is to be done. [Orthotolidine (OT) test. The test needs to be done after a regular period. If the O.T. test is positive, well water or hand pump water purification has the expected benefit of such bleaching powder. However, special care has to be taken to maintain the quality of sterilized water from time to time and prevent water pollution.

After the supply of pure water to the houses, it is necessary to store that water properly. Proper handling of water stored at home level is essential. Failure to do so would affect the quality of the water and invite disease. Household storage utensils should be cleaned daily, must be kept in a clean place, on a high level out of reach of children. Stored water should be properly covered so that it is not contaminated by outside dust and debris.



4.2.2 Stock making of drinking water

Care should be taken not to touch pure water by hands as much as possible, for this use a water dispenser with a long rod. Never put the water pot in the ground. We see a pit dug in the ground and an earthen pot placed in it. They do this to keep the water cool. However, the water in such pots can be detrimental to health. If you use a glass for drinking water, it is not necessary to drink water by touching it to the mouth. It is necessary to get in the habit of drinking water without touching the glass to the mouth. This will save water by reducing the amount of glass washing each time and will make it easier to maintain purity.

Surface and groundwater areas are more likely to be polluted during monsoons. Outbreaks of epidemic diseases exacerbate during this time. Therefore, special care should be taken for disinfection on such days. In such cases, the amount of bleaching powder should be increased for disinfection. O.T. Tests must be done regularly.

Water is aerated, drained, disinfected to remove water color, odor, taste and all kinds of bacteria. Alum, ferric chloride, ferrous sulphate are used to coagulate or flocculate the suspended particles and clean the water effectively. Aeration is used to remove gases such as carbon dioxide, hydrogen sulfide and to increase the amount of dissolved oxygen in the water, as well as to separate the compounds of dissolved iron and manganese..

Exercise

1. Which steps are used in purification of water ?
2. How to maintain the quality of water?
3. Take turbid water and roll a piece of alum in it and observe the effect on the water.
4. Prepare slogans on the topic of 'pure drinking water for health'.