



### What does disinfection entail?

- 💧 **Disinfection** of water entails the addition of the required amount of a chemical agent or disinfectant (e.g. Chlorine gas, Cl<sub>2</sub>, ozone, chlorine dioxide and other chlorine compounds such as calcium hypochlorite (HTH), sodium hypochlorite (bleach) and monochloramine) to the water and allowing contact between the water and disinfectant for a predetermined period of time (under specified conditions of pH and temperature).
- 💧 The term disinfection of water refers to the destruction of harmful micro-organisms in water to make it fit for domestic use. Water that is disinfected is safe to drink but it may still contain harmless micro-organisms.
- 💧 **Sterilisation** on the other hand, refers to the destruction of all organisms and applies only to specific applications such as the production of water for sterile intravenous drips, etc.
- 💧 Other methods of disinfection of water include **boiling of the water** or **irradiation with ultraviolet light**.

### Is disinfection still necessary after suspended and colloidal matter has been removed?

- 💧 A large fraction of bacteria and larger micro-organisms are removed during clarification processes, especially by sand filtration. However, many bacteria and viruses still remain in clarified water even at low turbidity levels.

### What else can be done to ensure that drinking water is safe?

Before disinfection, there are several other precautions that can keep drinking water safe:

- 💧 **Prevent** pathogens from entering the water sources.
- 💧 **Clarify** the water to remove the maximum number of micro-organisms from the water
- 💧 **Disinfect** the water source.
- 💧 **Check for effectiveness** of disinfection or whether the water is safe to drink, by
  - ✓ Testing of indicator organisms, e.g. *E. coli*
  - ✓ Determining the amount of residual chlorine in the water. If there is residual chlorine present in water with a low turbidity, it can normally be accepted that the water is safe to drink
  - ✓

(Indicator organisms are microbes of faecal origin occurring in large numbers in faeces, but which are causative themselves of the particular disease under consideration, but which indicate the presence of faecal contamination of water, and thus the possibility of the presence of disease causing microbes).