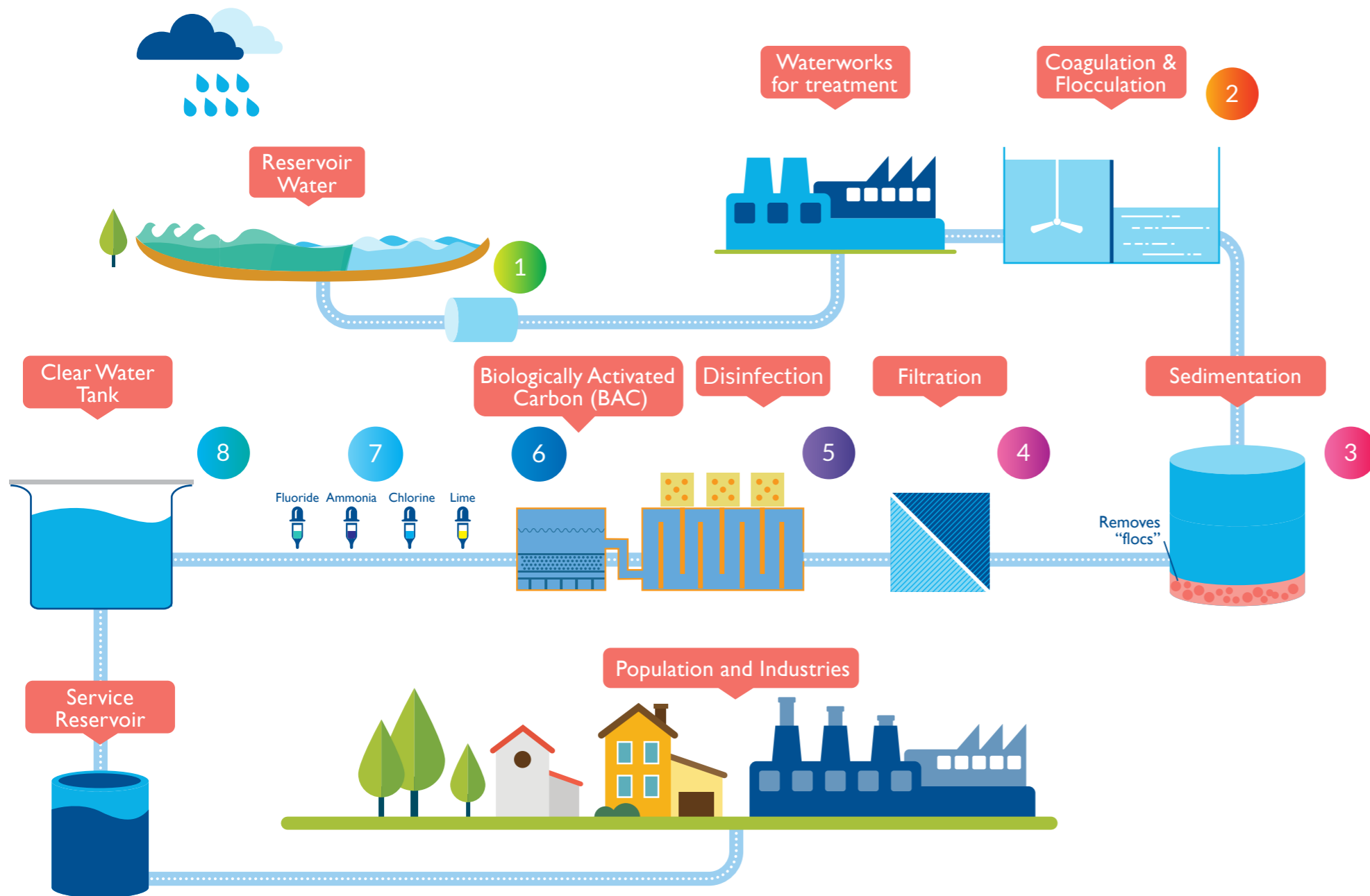


# From Source to Tap: PUB's Water Treatment and Water Quality Monitoring Process

In Singapore, raw water from reservoirs is conveyed by pipelines to the waterworks where it is chemically treated, filtered and disinfected. The treatment process removes harmful bacteria and suspended particulate matter, making the water clear, sparkling, odourless, colourless and safe for drinking. This multi-barrier water treatment process, together with our comprehensive on-line monitoring, sampling and control system, ensures water that arrives at our taps is well within the World Health Organisation (WHO) guidelines for clean drinking water.



- 1 **Screening:**  
Water is pumped through self-cleaning screens to remove large particles.
- 2 **Coagulation & Flocculation:**  
Coagulants and coagulant-aids like alum (aluminium sulphate) are added to bind or "flocculate" smaller suspended matter and particles, such as silt and sand, to form larger and heavier clumps called "flocs".
- 3 **Sedimentation:**  
Particles combine into larger clumped particles that settle to the bottom of the tank and are removed.
- 4 **Filtration:**  
The water then passes through either rapid sand filter or membranes to remove the finer residual particles of up to 0.02 microns.
- 5 **Disinfection:**  
After filtration, the water is disinfected with chlorine or ozone to kill all harmful bacteria and viruses.
- 6 **Biologically Activated Carbon (BAC):**  
Granular activated carbon filters remove natural organic matter, making the water biologically-stable.
- 7 **Post Chemical Treatment:**  
The water is dosed with lime to balance the pH of water and fluoride to prevent tooth decay. Chlorine disinfected water is dosed with ammonia while ozone disinfected water is dosed with chlorine and ammonia, to maintain water quality in the distribution system.
- 8 **Clear Water Tank:**  
After residual treatment, water is stored in the clear water tank, before pumping to the service reservoirs for distribution to customers.