

**Water quality** refers to the chemical, physical, biological, and radiological characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species, or to any human need or purpose.

### **Parameters of Water Quality**

- 1. Physical:** Temperature, turbidity, transparency
- 2. Chemical:** pH, DO, BOD, COD, organic matter, conductivity, total dissolved solids, salinity, mineral nutrients as C, P, N, Ca, Mg and K, toxic substances like metals such as Fe, Cu, Se and Zn and harmful pesticides, industrial chemicals etc.
- 3. Biological:** Total and fecal coliform bacteria

**Turbidity:** Measure of the clarity of water, which depends upon the amount and nature of insoluble mineral or organic particulate matter suspended in water. It is expressed as amount of total suspended solids per litre.

**Transparency:** is the measure of the ability of light to pass through water.

**Biochemical Oxygen Demand (BOD):** The amount of oxygen used by microorganisms under aerobic conditions for various biochemical processes, chiefly for the decomposition of organic matter.

**Chemical Oxygen Demand (COD):** Measure of oxygen equivalent of the organic compounds in a water sample that are susceptible to oxidation by a strong oxidizing agent (chemical).

**Conductivity:** The ability of water to conduct an electric current. It is indirect measure of the concentration of various elements in ionic state. Pure water has no conductance.

**Salinity:** The concentration of dissolved salts in water.

**Total and Fecal Coliforms:** Pathogenic bacteria which cause disease like cholera, diarrhoea, jaundice etc. entering water through fecal matter. They are estimated as most probable number (MPN) per 100 mL of water.

Water of **River Ganga** from near **Gangotri** is considered sacred and can be stored for decades without losing its specific characteristics. This property of Ganga water is not yet fully understood but is supposed to be due to presence of certain **bacteriophages** and traces of **radioactive** substances. As the water moves over land, more substances, both organic and inorganic, are added into water from different sources, and the diversity of organisms also increases.