# Prevention of Water Pollution

Prevention of water pollution focuses on avoiding contamination at the source rather than removing pollutants after they enter water bodies.
It is considered the most sustainable and cost-effective approach, protecting water resources and ensuring long-term ecosystem balance.

## 1. Objectives of Prevention

- To reduce the entry of sewage, chemicals, and wastes into water bodies.
- To maintain aquatic biodiversity.
- To promote public health and sanitation.
- To reduce the burden on treatment technologies.
- To ensure sustainable water use for future generations.

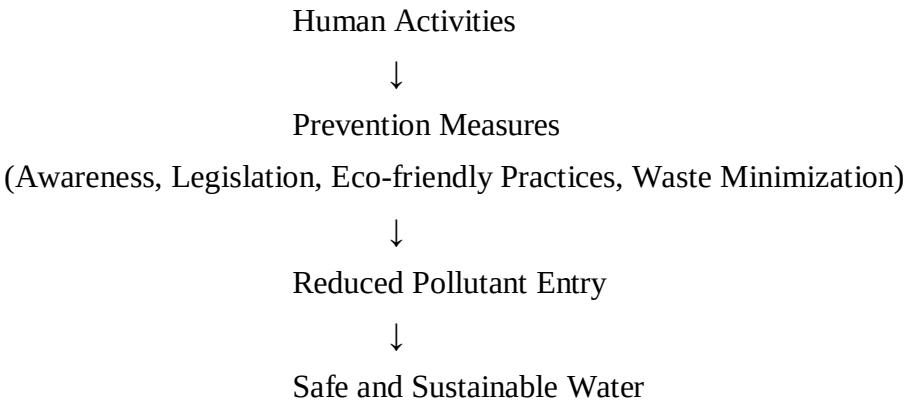
## 2. Preventive Strategies

- Public Awareness and Education
  - Campaigns for responsible water use and pollution avoidance.
- Legislation and Policy Frameworks
  - ImplementationoflawsliketheWater(PreventionandControlofPollution)Act, 1974.
- Eco-friendly Agricultural Practices
  - Reduced fertilizer and pesticide use, organic farming, drip irrigation.
- Industrial Pollution Prevention
  - Cleaner production methods, zero-liquid discharge (ZLD) technologies.
- Urban Sanitation Improvements
  - Eco-toilets, proper sewage collection, reduction of open defecation.
- Waste Minimization and Recycling
  - Solid waste segregation, plastic reduction, reuse of treated grey water.

## 3. Advantages of Prevention

- Lowers treatment costs.
- Protects aquatic ecosystems from irreversible damage.
- Ensures long-term water security.
- Involves community participation, making it practical and effective.

## 4. Diagram: Prevention of Water Pollution



# Control of Water Pollution

While prevention is ideal, complete avoidance of water pollution is not always possible. Control measures aim to treat, reduce, or neutralize pollutants already present in water systems, ensuring that water is safe for use and ecosystems are protected.

## 1. Objectives of Control

- To remove pollutants from contaminated water.
- To reduce BOD,COD,and heavy metal content.
- To treat sewage and industrial effluents before release.
- To restore rivers, lakes, and groundwater quality.
- To support safe reuse and recycling of water.

## 2. Control Measures

**Wastewater Treatment Plants(WWTPs)**

- Primary (physical), secondary (biological), and tertiary (chemical/advanced) treatments.

**Industrial Effluent Treatment**

- Common Effluent Treatment Plants(CETPs)for clusters of industries.

**Effluent Recycling and Reuse**

- Using treated water for irrigation, landscaping, and industrial cooling.

**River and Lake Cleaning Programs**

- Example: Namami Gange Mission in India.

**Bio remediation and Phyto remediation**

- Using microbes and plants to remove heavy metals and toxins.

**Regular Monitoring and Standards**

- CPCB/SPCBs monitoring BOD, COD, dissolved oxygen, and toxic elements.

## 3. Advantages of Control

- Makes polluted water reusable.
- Protects aquatic life from toxic discharges.
- Reduces disease spread.
- Supports industrial and agricultural sustainability.

## 4. Limitations

- High cost of advanced technologies.
- Sludge management challenges.
- Requires strict compliance and monitoring.

- Not effective if preventive measures are ignored.

## 5. Conclusion

Control of water pollution is are medial approach that complements prevention.
By implementing advanced treatment, recycling, and eco-restoration methods, it ensures that polluted water bodies can be revived and reused, safeguarding both public health and the environment.