

Introduction to Water Health

Water is essential for life. Human health and the environment depend on access to clean, safe water.

 by **Gnapika Sujan**





Importance of Clean Water

1 Drinking Water

Clean water is vital for hydration and essential bodily functions.

3 Agriculture and Industry

Clean water is essential for agriculture, food production, and industrial processes.

2 Hygiene and Sanitation

Clean water is crucial for maintaining personal hygiene and preventing the spread of diseases.

4 Ecosystem Health

Clean water supports healthy ecosystems, biodiversity, and aquatic life.

Contaminants in Water Sources

Chemical Contaminants

Chemicals from industrial processes, agriculture, and household products can pollute water sources.

1. Pesticides
2. Heavy Metals
3. Pharmaceuticals

Biological Contaminants

Bacteria, viruses, and parasites from sewage, animal waste, and agricultural runoff can contaminate water.

1. E. coli
2. Cryptosporidium
3. Giardia

Physical Contaminants

Sediment, debris, and other physical materials can pollute water and affect its quality.

1. Trash
2. Sand
3. Algae



Water Treatment Processes

1

Coagulation and Flocculation

Chemicals are added to the water to clump together small particles, making them easier to remove.

2

Sedimentation

Heavier particles settle to the bottom of the water, forming a sludge that can be removed.

3

Filtration

Water is passed through filters to remove remaining suspended solids and other contaminants.

4

Disinfection

Chlorine or other disinfectants are added to kill harmful bacteria and viruses.

Water Quality Standards and Regulations

Parameter	Standard	Unit
pH	6.5 - 8.5	pH units
Turbidity	< 1 NTU	Nephelometric Turbidity Units
Total Dissolved Solids	< 500 mg/L	Milligrams per Liter
Chlorine Residual	0.2 - 4.0 mg/L	Milligrams per Liter





Monitoring and Testing Procedures

1

Sampling

Water samples are collected from various locations within a water system.

2

Analysis

Samples are analyzed in a laboratory to determine the presence and levels of contaminants.

3

Reporting

Test results are compiled and reported to regulatory agencies and the public.

Emerging Water Health Issues



Microplastics

Microscopic plastic particles are increasingly found in water sources, posing potential risks to human and environmental health.



Climate Change Impacts

Climate change is altering precipitation patterns, increasing drought, and impacting water availability and quality.



Antibiotic Resistance

Antibiotic-resistant bacteria are spreading in water, making infections harder to treat.



Water Scarcity

Growing populations and changing water use patterns are leading to water scarcity in many regions.





Conclusion and Recommendations

Conserve Water

Reduce water consumption through efficient appliances, water-wise gardening, and mindful habits.

Support Water Treatment

Invest in water treatment infrastructure to ensure safe and clean water for all.

Educate and Advocate

Raise awareness about water issues and advocate for responsible water management policies.

Protect Water Sources

Reduce pollution and protect watersheds through responsible land use practices and environmental stewardship.