

Water Quality Testing and Safe Drinking Water Awareness

*Rupali, Dr. Payal Jaiswal, Dr. Subuhi Nishad and Arti Dhurw

Indira Gandhi Krishi Vishwavidyalaya, Raipur (Chhattisgarh), India

*Corresponding Author's email: nagwanshipooja312@gmail.com

Water is one of the most essential resources for human life, and access to safe drinking water is fundamental to good health and well-being. Unsafe or contaminated drinking water can contain harmful microorganisms, chemicals and other pollutants that may cause serious health problems, particularly diarrhoea, cholera, typhoid, dysentery and other waterborne diseases. In rural and semi-urban communities, people often depend on hand pumps, borewells, wells and community water-supply systems for their daily water requirements. The quality of these sources may be affected by poor sanitation, improper waste disposal, agricultural activities and unhygienic handling. In this context, water quality testing and safe drinking-water awareness are important community-health activities. The National Service Scheme (NSS) provides an effective platform through which students and volunteers can connect with communities, demonstrate basic water-quality testing and promote safe water, sanitation and hygiene practices. Such activities not only create awareness but also encourage people to take responsibility for protecting their local water resources.

Importance of Safe Drinking Water

Safe drinking water is essential for maintaining a healthy and productive community. Its major importance includes:

- **Prevention of diseases:** Safe water helps reduce the risk of waterborne diseases.
- **Better health and hygiene:** Clean water is necessary for drinking, cooking, washing and personal hygiene.
- **Protection of children:** Safe water and sanitation are particularly important for children's health and development.
- **Reduced healthcare expenditure:** Prevention of water-related diseases can reduce household medical expenses.
- **Improved quality of life:** Reliable access to safe water supports healthy living and community development.
- **Environmental protection:** Proper management of water resources helps maintain a clean and healthy environment.

Water-quality testing is also important because water that appears clear and clean may still contain harmful microorganisms or dissolved substances.

Major Causes of Water Contamination

Several factors can affect the quality of drinking water:

1. **Poor sanitation:** Open defecation and inadequate sanitation facilities can contaminate surface and groundwater.
2. **Improper waste disposal:** Disposal of household waste, sewage and other pollutants near water sources can deteriorate water quality.
3. **Agricultural activities:** Excessive or inappropriate use of fertilizers and pesticides may contribute to contamination of water resources.

- 4. Poor drainage:** Stagnant wastewater around hand pumps, wells and other water sources increases the risk of contamination.
- 5. Improper storage:** Keeping drinking water in uncovered or unclean containers can lead to contamination after collection.
- 6. Unsafe handling:** Dirty hands, utensils and containers can introduce microorganisms into otherwise safe water.
- 7. Natural contaminants:** Certain minerals and chemicals may naturally occur in groundwater and can affect its suitability for drinking.

Suggestions and Preventive Measures

To promote safe drinking water and protect community health, the following measures are suggested:

- Drinking-water sources should be tested periodically through appropriate water-quality testing facilities.
- People should be encouraged to use clean, covered and regularly washed containers for storing drinking water.
- Appropriate household water-treatment methods, such as boiling or suitable filtration, should be used according to local water-quality conditions.
- Handwashing with soap should be promoted, especially before eating or preparing food and after using the toilet.
- Water sources should be kept away from waste disposal, sewage and stagnant wastewater.
- Community members should avoid disposing of garbage and other pollutants near drinking-water sources.
- NSS volunteers should conduct water-quality demonstrations, awareness rallies, poster exhibitions, village meetings and house-to-house campaigns.
- Any suspected contamination should be reported to the concerned water-supply, health or local authority for appropriate action.
- Community participation should be encouraged for the cleaning, protection and sustainable management of local water resources.

Conclusion

Safe drinking water is not only a basic necessity but also an important foundation of a healthy society. Water-quality testing helps identify potential risks, while awareness and proper hygiene practices help prevent contamination and disease. The NSS can play a significant role in bridging the gap between scientific knowledge and community practices by organising water-testing demonstrations, awareness programmes and sanitation activities. The combined efforts of NSS volunteers, educational institutions, local communities, health workers and concerned authorities can create greater awareness and encourage responsible water-use behaviour. Regular water-quality monitoring, proper sanitation, safe storage and community participation can contribute significantly towards healthier communities and a cleaner and safer environment.





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