WATER CONTAMINATION: INDIA'S CRITICAL CHALLENGE

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Water contamination is one of India's most serious environmental and public health problems. A recent report, 'Polluted River Stretches for Restoration of Water Quality – 2025' from the Central Pollution Control Board (CPCB) show that 296 river stretches across 271 rivers in 32 states and union territories in India are highly polluted. It also identifies around 38% of monitored locations do not meet basic water quality standards such as permissible Biochemical Oxygen Demand (BOD) levels. More than 350 river stretches remain under pollution stress due to untreated domestic sewage, discharge of industrial effluents, agricultural runoff containing fertilizers and pesticides, and even waste generated from religious and cultural activities.

This pollution affects both cities and villages, contaminating drinking water sources, harming aquatic life, and increasing the risk of water-borne diseases such as cholera, dysentery, and typhoid. Rapid urbanization (over 37% in 2025), inadequate sewage treatment infrastructure (around 72% of sewage, particularly from Class I and II cities flows untreated into rivers, lakes, and ground water), and weak enforcement of environmental regulations further worsen the situation. Without strong wastewater management, strict monitoring, and public awareness, the problem will continue to threaten public health, agriculture, and overall water security in India.

It is estimated that nearly 37.7 million Indians suffer from waterborne diseases each year, while around 200,000 lives are lost annually due to lack of safe water. The impact on children is even more alarming, with poor water and sanitation causing 4–5 lakh deaths of children under five every year. With nearly 70% of India's water sources contaminated and less than half the population having access to safely managed drinking water, the urgency for comprehensive water treatment and infrastructure development cannot be ignored.

Groundwater, the main source of supplies for more than 70% of India's water is also under severe threat from increasing contamination. Studies indicate that 100–300 million people may be exposed to contaminants such as arsenic and fluoride, with nearly 60% of groundwater in major aquifers considered unsafe for human consumption.

Industrial pollution remains a major contributor, with textile, tannery and other sectors releasing untreated or partially treated effluent into rivers. Many critical stretches risk functional collapse if action is not accelerated.

A major ray of hope is the government's strong commitment to providing safe, piped drinking water to every rural household under its flagship Jal Jeevan Mission. This ambitious initiative aims to ensure functional household tap connections, improve water quality, and reduce the burden on rural communities, especially women and children who often travel long distances to collect water. By strengthening rural water infrastructure and promoting sustainable water management practices, the mission is playing a crucial role in improving public health, sanitation, and overall quality of life across India.

Strengthening Water Treatment

In this critical scenario, effective water treatment, both at the domestic and industrial level is no longer optional but essential. Proper treatment systems are vital to protect public health, prevent the spread of water-borne diseases, safeguard agricultural productivity, and preserve India's limited freshwater resources.

Expanding sewage and effluent treatment infrastructure, adopting advanced and energy-efficient technologies, and ensuring strict enforcement of environmental regulations are key steps toward long-term water security. The Zero Liquid Discharge (ZLD) approach further strengthens sustainability by ensuring that no industrial wastewater is released into the environment, enabling maximum water recovery and reuse within the facility. Industries across the spectrum must implement responsible wastewater management and recycling practices, while urban utilities and rural bodies must strengthen sewage collection and treatment networks.

Equally important is promoting water reuse, reducing wastage, and encouraging community awareness about responsible water practices. With a rising population, rapid urbanization, and growing industrial processes, India must prioritize sustainable water management. A coordinated approach combining technology, policy enforcement, and public participation is essential to ensure safe, reliable, and sustainable water availability for future generations.

Why proper water treatment matters:

- **Protects public health:** Effective treatment removes disease-causing microbes and harmful chemicals, reducing waterborne illnesses such as diarrhoea, cholera, typhoid, hepatitis and other infections linked to unsafe water.

- Mitigates long-term health risks: Removes toxic contaminants such as arsenic, fluoride, nitrates, heavy metals and pesticides that cause chronic illnesses.
- Improves water taste, odour and acceptability: Increases consumer confidence and reduces dependence on bottled water.
- Ensures safe domestic consumption: Treated water supports safe drinking, cooking and hygiene for households, a basic human right.
- Supports safe industrial use: Industries depend on reliable water quality to maintain product quality, avoid equipment corrosion, and environmental discharge violations.
- Enables water reuse and recycling: Treated wastewater can be safely reused for industrial processes, landscaping and non-potable applications, reducing pollution and freshwater demand.
- Protects groundwater resources: Prevents contamination from untreated sewage and industrial effluents, safeguarding future water supplies.
- Boosts economic productivity: Healthy communities and uninterrupted industrial operations contribute directly to economic growth.
- Promotes circular water economy: Turns wastewater into a resource rather than a liability.
- Supports sustainable urbanisation: Reliable treated water is critical for growing cities, housing, healthcare and public infrastructure.
- Strengthens climate resilience: Treated and reused water improves availability during droughts and extreme climate events.
- Ensures regulatory compliance: Helps utilities and industries meet BIS (IS 10500), CPCB & discharge norms, avoiding penalties and shutdowns.
- Preserves ecosystems: Treating wastewater protects rivers, wetlands and aquatic life and prevents long-term environmental degradation.

Advanced Water Treatment by Sahara Industry

Sahara Industry has established itself as a leader in the field of advanced water treatment, combining decades of expertise with cutting-edge technology to address the growing challenges of water contamination and scarcity. With over 1200 completed projects and decades of experience, the company designs a wide range of solutions, including reverse osmosis systems, FRP membrane housings, UV disinfection units, and sewage treatment plants. These systems are engineered to deliver safe drinking water, support industrial processes, and enable wastewater recycling, thereby reducing dependence on freshwater sources.

By integrating global technologies with indigenous innovation, Sahara Industry ensures that its solutions are both affordable and highly effective. Beyond technical excellence, the company emphasizes sustainability, encouraging responsible water use and promoting eco-friendly practices. Its projects span across India and international markets, reflecting a commitment to environmental stewardship and community well-being. Through these efforts, Sahara Industry is not only providing reliable water treatment solutions but also contributing to a future where clean water is accessible, resources are conserved, and industries can thrive responsibly. What makes Sahara Industry different is its strong focus on quality and meeting international standards. The company offers several products certified under NSF/ANSI and ISO 9001 standards, which ensure high levels of safety, performance, and reliability. These certifications confirm that the systems are safe for drinking water use and meet strict global requirements.

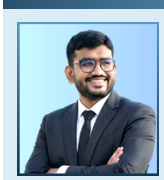
By maintaining these standards, Sahara Industry shows its commitment to delivering trusted and globally accepted water treatment solutions. Its blend of innovation, certified quality & reliable performance makes it a dependable partner for providing sustainable and advanced water treatment solutions.

The Way Forward

India's future depends greatly on how well it manages and protects its water resources. Investing in strong and modern water treatment infrastructure is essential to ensure safe drinking water for communities and reliable water supply for industries and agriculture. Expanding sewage treatment plants and industrial effluent treatment facilities will help reduce river pollution and protect groundwater sources. At the same time, strict water quality monitoring and better enforcement of environmental regulations are necessary to prevent untreated waste from entering natural water bodies. Regular testing, transparent reporting, and accountability can significantly improve overall water management.

By strengthening treatment capacity, promoting wastewater reuse, and encouraging responsible industrial practices, India can reduce health risks, support economic development, and protect the environment. A long-term, coordinated approach involving government, industries, and consumers is crucial to ensure sustainable water security for future generations.

ABOUT THE AUTHOR



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In India, where access to clean water is a daily struggle for millions, Abdul Rahman Mohammed, the CEO of Sahara Industry, stands out as a leader who has made Water quality & sustainability not just a business mission, but a national priority. Through two decades of unwavering commitment, he has transformed Sahara Industry into one of India's most trusted names in Water and Wastewater treatment.