

Realizing potential of recycled water requires significant investments, regulatory support, and public acceptance



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Mohammed Naser Azeez, Managing Director, Aquality Water Solutions Pvt Ltd expresses that insufficient and legacy infrastructure, inadequate funding, increasing water losses, untreated wastewater discharge and the lack of awareness have resulted in widespread water scarcity. He discusses how this entrepreneurial firm operating in an era of intense competition is driven by the creation of value rather than a singular focus on pursuing business opportunities.

How is the landscape for water & wastewater treatment evolving in India?

India, with over 1430 million population and growing urbanization is facing with surging demand for clean water, while water pollution levels are on the rise. The nation is facing an increasingly critical challenge of managing its water resources effectively. The evolving landscape for water and wastewater treatment is critical for country's sustainable development. Insufficient and legacy infrastructure, inadequate funding, huge amount of water losses, increasing pollution in water bodies due to untreated wastewater discharge and the lack of awareness have resulted in widespread water scarcity. Waterborne diseases have become a significant concern, especially in rural areas where access to clean drinking water remains limited. However, recognizing the urgency of the situation, the Indian Government, has undertaken various initiatives to improve water and wastewater treatment across the country like Jal Jeevan Mission to provide functional tap water connection to every household; Atal Mission for Rejuvenation and Urban

Transformation (AMRUT) to provide basic services like water supply and sewage treatment to urban areas by creation of infrastructure; National Mission for Clean Ganga (NMCG) to clean and rejuvenate the River Ganga to improve wastewater treatment plants and reduce industrial pollution; Swachh Bharat Mission for improving sanitation and wastewater treatment facilities; National Water Mission for sustainable water management and promoting efficient use of water resources, including wastewater treatment; Atal Bhujal Yojana for sustainable groundwater management; Rain Water Harvesting projects. All these along with initiatives taken by industries to reduce wastewater discharge by implementing advanced wastewater treatment technologies for reclaim and reuse have been making positive strides towards mitigating the challenges of water and wastewater treatment.

How big is the opportunity to use wastewater as the water resource for India to meet the needs?

Using wastewater as a water resource presents a significant opportunity in India to meet the growing

water demands. The studies and estimate suggest that India is producing almost 80,000 MLD (million litres daily) of municipal sewage from cities only and almost an equal volume of industrial effluents. But only about 30% of municipal and little over 50% of industrial wastewater is being treated before disposal. A huge quantity of wastewater does not receive any kind of treatment and discharged to water bodies. We can imagine the substantial opportunity to use wastewater as a resource in India that can play a crucial role in addressing water scarcity and ensuring sustainable water management. The recycled water can effectively be used for agriculture, industrial, cooling and washing and even other non-potable purposes, big savings of fresh water for drinking purposes. However, realizing this potential requires significant investments, regulatory support, and public acceptance. If properly managed and implemented, it can help India meet its growing water needs while reducing stress on freshwater sources and protecting the environment.

Which are the key technologies to effectively respond to the water challenge in India?

The technological advancement has created a ripple effect in all business sectors including the management of water and wastewater. The new technology is changing the landscape of water treatment methods, wastewater treatment, leak detection, demand-supply, network management, and many other fields by improving the processes. Innovation in water management is crucial for addressing the growing demand for clean water while ensuring the efficiency and sustainability of the resources.

In the Indian context, several key technologies are highly relevant to effectively respond to the water challenges. These technologies address various aspects of water management, from water purification and treatment to conservation and distribution.

Technologies of high relevance in Indian context

Advanced water purification technologies

- Reverse Osmosis (RO)
- Ultra and Nano filtration
- Advanced Oxidation
- UV Irradiation
- Ion Exchange

Smart water management

- Internet of Things (IoT),
- Geographic Information Systems (GIS),
- Machine Learning (ML),

- Smart Sensors and Monitoring Systems,
- Advanced Metering Infrastructure (AMI)
- Data Analytics

Advanced water purification technologies such as Reverse Osmosis (RO), Ultra and Nanofiltration, Advanced Oxidation, UV Irradiation, Ion Exchange etc. are effective in removing impurities from water, making it suitable for drinking and industrial processes. Smart water management using Internet of Things (IoT), Geographic Information Systems (GIS), Machine Learning (ML), Smart Sensors and Monitoring Systems, Advanced Metering Infrastructure (AMI), Data Analytics, and Automation etc. can help in mapping, monitoring and analyzing water resources, water quality,

usage patterns, and leak detection facilitating informed decision-making enabling water utilities in efficient water management.

Tell us your key focus areas and how do you plan to leverage the emerging opportunities.

AQUALITY delivers safe drinking water to a diverse clientele by custom-designed high-quality water treatment solutions using unique technologies. Civilian houses, defence installations, pharmaceuticals, textiles, commercial establishments, institutions, technological firms, and ultrapure water for industries. We are strongly focussed in providing innovative solution, as we firmly believe that modern age water challenges cannot be tackled through conventional methods. Our organization is committed to the idea that innovation plays a pivotal role in the growth and long-term sustainability of any organization. While achieving high growth is undoubtedly a crucial measure of success, it alone may not guarantee community development and environmental restoration. Given the current socio-economic landscape where environmental concerns have taken centre stage on a global scale, it becomes imperative to make local efforts that contribute to growth with more extensive benefits. As an entrepreneurial firm operating in an era of intense competition, our progress is driven by the creation of value rather than a singular focus on pursuing business opportunities. This strategic decision permeates our approach at every stage of our operations.

What are the latest products and technologies offered by your organization?

4 Softeners of 6m³-Hr 144 KLD RO Plant for Super PS Plant Our new innovation and latest offering includes solar-powered water treatment systems that harness the energy of the sun to provide clean and safe

4 Softeners of 6m³-Hr

144 KLD RO Plant for Super PS Plant

drinking water. This innovative water treatment and purification system is environment friendly, energy-efficient, and particularly useful in off-grid or remote areas where access to electricity is limited. AQUALITY has successfully implemented this system on a large scale for security forces stationed in distant and secluded areas with limited access to electricity, and where groundwater contains elevated levels of arsenic and other hazardous substances. Our solar-powered water treatment solutions not only provide easy access to clean drinking water but also foster sustainability by reducing dependence on fossil fuels and lowering greenhouse gas emissions. Additionally, these systems can recycle used water for non-potable applications, promoting a circular water economy. AQUALITY firmly believes that these technologies play a crucial role in tackling water-related issues, particularly in areas with restricted access to conventional energy sources.

Which are the latest projects commissioned recently and in the pipeline?

Aquality has recently installed a number of compact solar-powered water treatment systems in the forest areas in Chhattisgarh state for security tenancies where the water bodies are non-existent, and groundwater has high level of harmful contamination. The purification device is compact, around the size of a big box, has



Solar Powered Water Filtration System-6

low power requirements and no removable parts that need to be maintained or replaced. The best part of the system is, it can even reclaim the wastewater to be used in toilet flush in all Swachh Bharat Mission toilets that has been constructed but not being used properly due to lack of water. The company is currently executing institutional water treatment projects for a large multinational global fortune 500 company who has employed several thousand people in their large setups across India.

What is your future growth strategy & investment plans?

Aquality has successfully transitioned business model from conventional systems to modern and sustainable solutions, offering top-tier water treatment solutions. Our innovative solar-powered water treatment system, fuelled by renewable energy, has garnered widespread acceptance. We have identified specific growth areas within the water sector, such as municipal water treatment, industrial water management and wastewater treatment and reclamation. We are investing in research and development for innovative products to stay at the forefront of technological innovations in water treatment segment, both in domestic and industrial water supply areas. As our commitment to environmental sustainability, we are implementing energy-efficient processes and equipment to reduce carbon footprint ■