Water recycling will define the next generation of water infrastructure in India.

YOGEN LAL
CEO - Strategy and Business Development, Water Vertical,
Welspun Enterprises Ltd

India's water security is becoming vulnerable with changing weather systems like severe summers and fluctuations in monsoon rains. What is your thought on the situation?

India has experiences regional variations in rainfall, the climate change has significantly amplified these extremes. Over the last few years, we have been witnessing prolonged dry spells, erratic monsoons, cloudbursts, urban flooding and recurring droughts, thereby disrupting the natural replenishment cycle of our rivers, lakes and groundwater aquifers. At the same time, water demand continues to rise due to rapid population growth, expanding cities and industrial growth (e.g. data centres). This widening gap between water availability and demand makes water security one of India's most pressing infrastructure challenges.

As a response to the above situation, it is imperative that India adopts a holistic water management approach of treating water supply, wastewater management, stormwater drainage and groundwater recharge as one interconnected system. Every drop of water should be viewed as a valuable resource that can be collected, treated, reused and returned to the ecosystem.

Rainwater harvesting is one way to combat water scarcity in the country. How far is this happening in the country?

Over the years, rainwater harvesting has gained considerable policy support with several states mandating rooftop rainwater harvesting for large residential, commercial and institutional developments. The Government's "Jal Shakti Abhiyan: Catch the Rain, where it falls, when it falls," widely promotes awareness on water conservation and rainwater harvesting. Many Smart City and AMRUT projects have incorporated recharge structures into urban planning as well. However, the implementation is still far from its potential. Many systems are installed primarily to meet regulatory requirements; we however need to also focus on its maintenance and long-term effectiveness.

In urban areas, increasing concretisation also limits natural groundwater recharge despite significant annual rainfall. The next phase should focus on scaling rainwater harvesting from individual buildings to city-wide watershed management. Urban lakes, wetlands, recharge wells, stormwater retention systems and green infrastructure can become integral components of municipal planning.

How is water treatment becoming increasingly important in the current water scenario?

Water and wastewater treatment have become central to ensuring both water availability and public health. Traditionally, utilities relied on abundant surface water sources that required relatively simple treatment. Today, many cities are drawing water from polluted rivers, reservoirs affected by seasonal fluctuations and groundwater sources with varying quality characteristics. Consequently, treatment processes have become more sophisticated and technology intensive. We need modern treatment plants to not only meet stringent drinking water standards but also to operate efficiently under changing raw water conditions and minimise energy consumption and lifecycle costs. Water treatment is therefore evolving from a conventional utility function into a strategic component of urban resilience.

What are the major solutions from the company in water treatment and supply systems?

As an organisation, Welspun is committed to delivering differentiated, innovative, and future-ready water infrastructure that strengthens India's resilience against climate change while improving the quality of life for millions of people. Our technology-driven approach enables us to deliver safe, reliable and sustainable water and wastewater solutions across the entire water cycle - from sourcing and treatment to distribution, recycling, and safe return to nature.

This commitment is exemplified by landmark projects such as India's first multi-storey 418 MLD wastewater treatment facility in Dharavi, Mumbai, the 2,000 MLD water treatment plant at Bhandup, Mumbai, one of the largest of its kind globally, and the recently awarded 910 MLD Water Treatment Plant at Panjrapur, Mumbai. Our technology interventions have resulted in providing solutions in 40% of the footprint previously used while meeting stringent water quality norms.

How is wastewater recycling gaining importance in the current scenario? How is the company contributing to the current and future needs of wastewater recycling?

Though freshwater resources are finite, wastewater is a continuously generated resource that can be treated and reused multiple times. This creates enormous opportunities to reduce dependence on freshwater for non-potable applications. Today, technology exists to treat wastewater to potable ready levels. Welspun's STP at Dharavi, spread over 5 hectares, involves design, construction and operation & maintenance of a 418 MLD wastewater treatment facility, including 209 MLD tertiary treatment plant, to fulfil the growing need of recycling and reusing wastewater. Once complete, this facility will be India's first and the world's only second multi-storeyed wastewater treatment plant and will immensely contribute towards cleaner and greener environment for Mumbai City.

How important is desalination projects in the country and how viable are such projects in the current scenario?

India has made significant progress in desalination over the past two decades, particularly in water-stressed coastal places such as Chennai, Mumbai, and certain areas in Gujarat. Although desalination remains more energy intensive and capital intensive than conventional water treatment, continuous advancements in reverse osmosis membranes, energy recovery devices and renewable energy integration have substantially improved project economics. From an EPC perspective, desalination projects require specialised engineering capabilities, complex intake and outfall systems. However, desalination should complement—not replace—other water management strategies. Rainwater harvesting, wastewater recycling, demand management and reduction of distribution losses must remain equally important components of a diversified water portfolio.

What is your vision on recycling for India's sustainable future?

Water recycling will define the next generation of water infrastructure in India. Our vision is that every city should strive towards becoming a circular water economy, where wastewater is systematically collected, treated, reused and integrated back into productive applications. Additionally, rainwater harvesting should be mandated to catch every drop of rain to not only recharge the groundwater levels but also create storage buffer where feasible. The eventual aim should be to reduce demand on fresh water.

Achieving this vision will require very high level of collaboration between governments, utilities, technology providers, EPC companies, industries and citizens. ■