DIGITAL TRANSFORMATION OF WATER

By Mohammed Naser Azeez, Managing Director, Aquality Water Solutions Pvt. Ltd.

It is certainly a big task for India to provide drinking water facilities to the growing population, currently hovering around 1375 million. This is roughly 17.7% of the global population, the second most populous country after China and growing at the rate of 1.1%. The vital resource responsible for the existence of all living beings is available in a very limited quantity; just about 4% of the global fresh water resources are available in India. It is a significant challenge in water management as the resources are getting shrunk and demand rising. A large population in the country do not have access to piped drinking water facility and the remaining ground water is getting polluted as over 63% of municipal wastewater and 40% of industrial wastewater is left untreated and being discharged in water bodies. From the public health perspective, impact of water borne diseases in the country affects almost 65 million people annually. The traditional infrastructure development sectors in India have been highways, airports, power or smart cities; but the situation has changed and the focus has now shifted to water. The Prime Minister of India during his Independence Day speech in 2019 has turned the focus on the country's precarious water situation, announcing government's ambitious Jal Jeevan Mission to provide drinking water facilities to all residents of the country. Under the Jal Jeevan Mission, the massive investment is required in planning and rolling out the government's promise to deliver piped water to all rural homes by 2024. With the looming scarcity and water shortages, it is a foremost challenge before the country.

The importance of drinking water also finds a mention in the Union budget and Niti Aayog's predictions of metros running dry and nearly 600 million people in India likely to face high to extreme water stress and 21 major cities will be facing zero groundwater levels within this year. The Rs. 3.6 lac crore ($5 trillion) allocations for Jal Jeevan Mission for five years duration to provide safe drinking water to all rural households will require large scale infrastructure development for making this mission successful. This is a massive task and not only requires dedicated budget and large infrastructure development, at the same time technological intervention and digital transformation is equally important to plan, execute, monitor and maintain the operation of the projects.

Digital Transformation of Water

The water sector has been in focus for few years now with government support by way of new programmes and schemes, policy and regulatory reforms and innovative funding options. The growth momentum need to be maintained with strategic measures such as capacity building, technological intervention, digitalisation of systems and processes, inclusive participation of private sector, adoption of best practices and timely completion of projects.

The rise of the internet with its inexpensive and ubiquitous connectivity have unleashed the wave of IT–driven transformation in product and service that enabled coordination and integration with product manufacturers, suppliers, service providers and customers across the geographical spread.

The digital transformation of water sector continues to increase in a pace and scale in last few years, several emerging technologies notably

About 44% of the country's total population in India is facing high to extreme water scarcity.

Block Chain, Artificial Intelligence (AI) and Machine Learning (ML) has enabled the ability to outsource data storage and computing to the cloud. While these newer technologies have become exciting tools to improve service efficiency and reduce costs, the integration into business operations has been lacking.

Some water utilities in India have taken steps towards adopting and using of advanced technologies and digital solutions in their operations but for most of them it is still out of their radar. A few utilities and municipalities have installed smart meters to measure water leakages and flow meters to enable real–time monitoring of water supply and have set up a data acquisition centre for collating data from the central supervisory control and information acquisition system for accessing real time data for effective operation and maintenance. But the water challenges in the form of climate change, population growth, rapid urbanization and ageing infrastructure will continue to intensify and will impel the journey of all water utilities towards digital transformation.

The technological shift is happening in the water sector at both operational and service levels. These changes are happening due to constant innovation in the form of smart water, digital water, internet of things (IoT), machine learning, IMIS, remote monitoring etc. Smart water solutions in all segments like hardware, software, data analytics, customer services and predictive maintenance to improve operating and capital efficiencies are taking place irrespective of size and working of utilities. Smart water solutions are becoming necessities to address the growing challenges of water scarcity, growing contamination, customer demand for improved service at lower cost, increased environmental awareness, regulatory compliance measures, and technological innovations.

Digital water technologies will continue to advance with adoption and use by public utilities and private companies with its constant innovation. The latest in digital technologies are satellite data acquisition for real time water quality monitoring and flood prediction, AI applications for asset and resource management and real time water quality monitoring at the tap level along with consumer complaint redressal system.

Smart Water Technology – Need for Future

The biggest task before the water utilities across globe is to achieve cost effectiveness and improve operational efficiencies. In India water utilities have to become more customer–centric as smart water will be playing a key role in its smart cities mission. The digitalization of water network and services are changing the relationship between a utility and its customer, transforming a remote supplier into a connected service provider with connectivity in myriad ways. Smart and connected machineries and systems offer for new functionality, far greater reliability, much higher utilization, and capabilities that cut across and transcend traditional water supply services.

Within the smart water, asset management has emerged as the key area that incorporates asset centric products and services from leak detection, pressure management, and workflow management to operationalize historic data in asset–centric decision making. With fast improving digital technology and service provider, water utilities can find solutions to improve how

More investments are expected to flow towards water efficiency and digitalization of services offering a positive outlook for the water sector in India.

they plan, monitor, and manage their critical water infrastructure. Smart and connected systems provide new opportunities to water utilities to make strategic choices related to how value is created and captured, how the phenomenal amount of sensitive data they generate is utilized and managed, how relationships with customers and traditional partners are redefined as the service boundaries are expanded and becoming more demanding. Aquality Water Solutions Pvt. Ltd. is optimistic about the scaling opportunities for smart water services and its water experts are tracking key market trends, opportunities, and strategies shaping this growing market.

Way Ahead

The digital intervention in water sector looks poised to continue its rapid expansion, despite all interruptions including the impact of Covid–19. It is still not clear what the fast–moving situation with this pandemic will affect the water and wastewater sector. One thing is very clear that the digitalization of water will continue in a forceful way as a confluence of mounting economic, environmental, demographic, and technological pressures once the situation becomes normal across the globe.

It is clear that digital technology will change the nature of water and wastewater services given the streaming of emerging technology like big data, artificial intelligence, digital twins, and the internet of things, block chain, and machine learning etc. The digital innovations are much needed to promote water efficiency, cut water consumption, upgrade aging infrastructure, reduce water losses and improve upon the customer services for water utilities to be relevant in the new world order.

About the Author

Mohammed Naser Azeez is a first generation entrepreneur with over 15 years of multi–cultural experience across different industry segments. He has played a major role in formulation and implementation of marketing strategy for highly competitive global environment. He established Aquality Water Solutions Pvt. Ltd. as a strong mission driven organization with the sole intention of providing clean drinking water facility to the masses.

To know more about the contributor of this case study, you can write to us. Your feedback is welcome and should be sent at: deepak.chaudhary@eawater.com.