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R E N U T O M A R
(Editor-in-Chief)

Dear Readers,

Finance Minister Nirmala Sitharaman presented the Union Budget for FY 2022-23 on 1st February 2022. Prime Minister's pet 'Nal se Jal' scheme remains a priority in this year's budget too. The budget is a forward looking one for the water sector in the country, focusing on a plan to provide water to every household.

In this Union Budget, INR 60,000 crore has been allocated to extend tapped water coverage to 38 million households in 2022-23 under "Har Ghar, Nal Se Jal" flagship schemes. As of now, over 80.7 million homes are covered by the scheme. Out of which, 5.5 crore households have received tap water in the last two years. The government is aiming to provide 18 crores household with piped water by 2023.

According to a projection by the Organization for Economic Cooperation and Development, India's water consumption would increase by more than 70% by 2025. This reveals a significant demand-supply discrepancy, which will pose a number of issues in the near future. This year's budget will help in bridging the gap between the demand and supply.

India already has the resources in place to build a reliable and efficient water system. The government needs to plan well and kick start them to provide clean and safe water to every home. This calls for specialized teams to focus on improving the water infrastructure while also enlisting the help of a variety of other stakeholders.

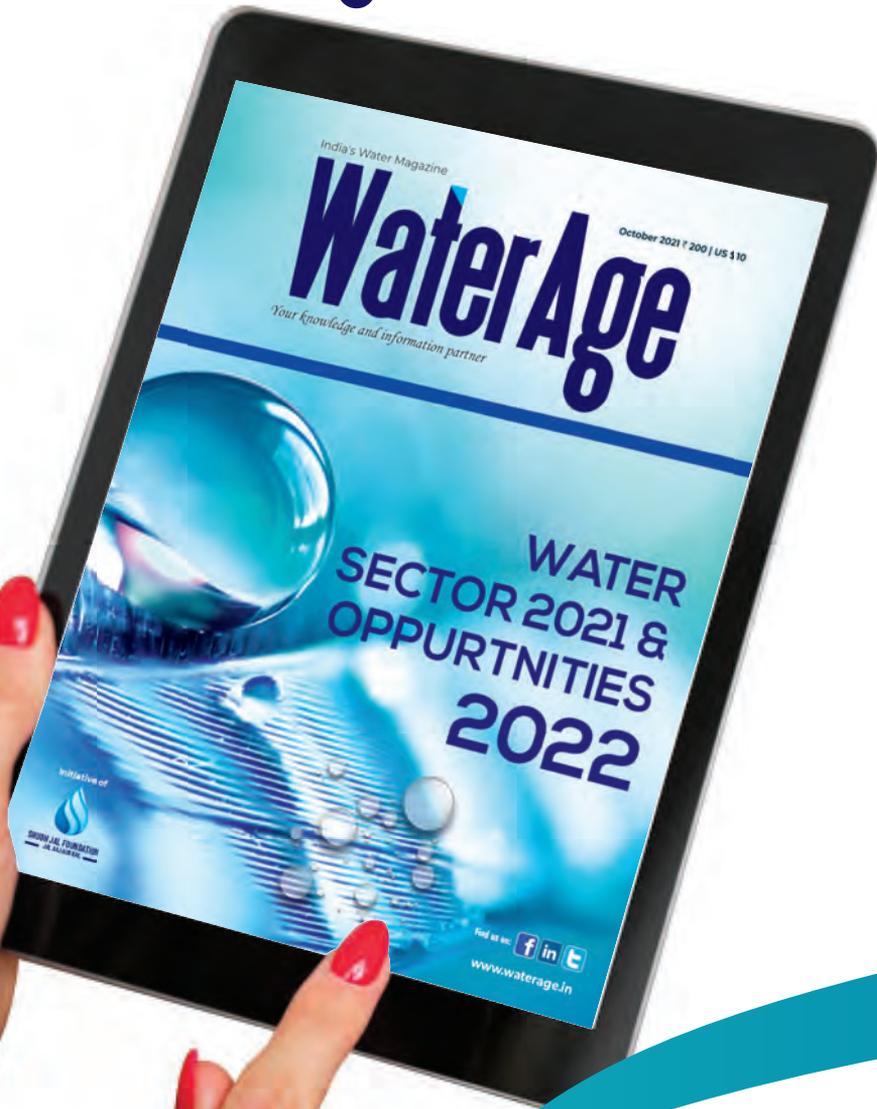
Let's hope that the allocated funds will be utilized well and every house in the country will have access to the piped water.

The February edition of the magazine is focused on Smart Water and Digitization in water sector along with few other articles focused on some very crucial topics.

Please have a look at the interesting and informative articles & case studies and provide us with your thoughts.



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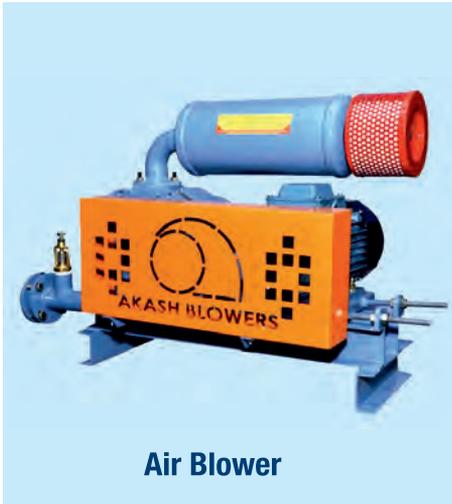
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TERI Awards ABB India's Nelamangala Unit with "Water Positive" Certificate



ABB India has announced that its Nelamangala unit has received a 'Water Positive' certification from The Energy and Resources Institute (TERI). The water positivity index for Nelamangala plant is 1.24. In place of simply replacing the amount of water taken from the environment, the unit implemented an Innovative 6R approach towards 'Water Positivity' to replenish more water than it consumes at the location.

The unique 6R approach includes initiatives such as rainwater use and recharge, reduction in the use of freshwater, water recycling, and real-time monitoring of water consumption, recharge, and saving. The Nelamangala unit currently has 17 rainwater recharge wells, 2 recharge ponds along with 5 cross wave technology-based recharge tanks.

ABB products such as water flow meters were installed in the rainwater recharge system to capture real-time data.

To reduce consumption of water, ABB India installed water-efficient fixtures, restricted the use of turf in the landscape area, and planted drought-tolerant plants in 81 percent of the landscape area. The unit has provisions of rainwater tanks for rooftop runoff along with TERI-approved filtration to get suitable water for a variety of end-uses. The campus has achieved close to 85 percent of water recyclability with the help of efficient Sewage Treatment Plant (STP) and recycling the treated wastewater for use in gardening and washrooms.

Budget of INR 9.59 Crore to Manage Grey Water in Kurukshetra District's 30 Villages

A budget of INR 9.59 crore would be spent on grey water management in 30 villages across the district.

Grey water is water that has been used in showers, tubs, washing machines, and bathroom sinks but has not been exposed to human waste. Food, household cleaning products, and other items may, however, be present.

Existing community ponds and water bodies will be rehabilitated as part of the project. The entire village's wastewater will be channelled to



ponds, and the drainage system will be reinforced. Water will be used for agriculture after it will be treated.

To provide end to end solution for the wastewater in the rural areas, it will be channelised and diverted to ponds in villages. The existing ponds will be restored. The drainage network will be strengthened under this project to divert water to ponds in villages.

Without using any chemicals or installing a mechanical mechanism, water will be treated with the help of the wetland technique, which is a natural process, as proposed by the Haryana Pond and Waste Water Management Authority. Drawings and designs are being provided by the authority.

The wetland technology structure, in which a variety of plants and boulders are used to naturally treat water, will be installed at the inlet point of the greywater. Thirty villages have been selected. The remaining villages will be covered in a phased manner. Some villages may have multiple ponds. The project will help in recharging groundwater and available discharge will be used for agricultural purposes.

Of 30 sanctioned projects, 12 works will be carried out in Thanesar block, seven in Pipli block, three each in Pehowa, Ismailabad, and Babain blocks, and two in Shahabad block of Kurukshetra.

HECS to Set Up India's Largest STP Manufacturing Facility Near Chennai

Hubert Enviro Care Systems P Ltd (HECS) has recently acquired a 2.5 acre industrial land parcel at SIPCOT Vallam Industrial Estate at the outskirts of Chennai to set up its second manufacturing unit for manufacturing of FRP Packaged Sewage Treatment Plants.



This facility is expected to be one of the largest units in India for manufacturing of Packaged Sewage Treatment Plants.

HECS is India's Leading Environmental Management Company and has over 25 years of experience in the field of Water, Waste Water and Sewage Treatment and has completed innumerable projects across India and the Middle East.

With this vast experience, HECS has earmarked an overall investment of over 20 crores for this manufacturing unit, Phase one of the project is expected to complete by July 2022. Through bulk manufacturing of Sewage Treatment Plants, HECS is set to revolutionize the complete Industry through economical products of the highest quality which ensure the best performance.

The manufacturing unit will house the most advanced Fiber Reinforced Plastic (FRP) manufacturing equipment's which will be sourced from across the globe to ensure that the products are of the best quality and the highest technology.

Dr. JR Moses, CEO of HECS says, 'There is a huge requirement in India for quality Packaged Sewage Treatment Plants, this sector is generally catered to by innumerable smaller water treatment OEMs and is commonly plagued by design flaws and performance issues. After immense R&D, we started our bulk manufacturing of STPs around a year back and our existing manufacturing unit is running at full capacity ever since. The company has acquired this Industrial land parcel with a vision to set up a unit with a manufacturing capacity of around 600 units per year which is around 15 times more than their existing units' capacity. These standardized FRP STP units proudly designed and manufactured in India are of the highest standards in comparison to any other competitors both local and international. The company will also be using this manufacturing unit to fulfill our export demands across Asian, European, and African markets'.

Energy Recovery Receives Two Industrial Wastewater Treatment Contracts in Asia

Energy Recovery has been awarded two contracts to supply its PX® Pressure Exchanger® (PX) energy recovery devices and an array of pumps to support industrial wastewater treatment operations at a battery-grade lithium carbonate manufacturing facility in Tibet, China and a textile wastewater treatment facility in Rajasthan, India.

Both projects will utilize Energy Recovery's flagship PX in the seawater reverse osmosis (SWRO) desalination portion of their industrial wastewater treatment operations.

The textile wastewater treatment facility in India will utilize a combination of Energy Recovery's PXs, turbochargers, and boosters to maximize efficiency. The operation in China is at one of the largest salt lakes in the world and will produce lithium carbonate, a crucial ingredient in lithium-ion batteries that power electric vehicles. Energy Recovery's PXs will help make treating industrial wastewater associated with lithium mining operations more energy efficient.

"Energy Recovery's technology has always accelerated the environmental sustainability of critical industrial processes," said Robert Mao, Energy Recovery's President and CEO. "Our products continue to bring affordable, drinkable water to communities around the world. Today, by making wastewater treatment more energy efficient, our products are also making industrial operations like textile manufacturing and lithium mining into cleaner, greener processes."

More regions are prioritizing sustainable wastewater treatment as the world faces dwindling freshwater resources, and regulatory pressure to reduce pollution from industrial operations increases. The opportunity for industrial wastewater treatment is vast – more than 16% of global freshwater withdrawals end up as industrial wastewater, flowing back into the world's aquatic ecosystems without being treated.

"The need to efficiently and sustainably treat wastewater is truly a global issue," said Rodney Clemente, Energy Recovery's Senior Vice President of Water. "Particularly in fast-developing countries that have embraced industry and manufacturing – like much of South Asia – wastewater treatment will no longer be a nice-to-have, but a must-have. With Energy Recovery's state-of-the-art technology, wastewater treatment can also be an energy efficient, economical, and more environmentally friendly process."

The emissions and cost savings of the PX will enable industrial producers to better align with the UN Sustainable Development Goals (SDGs), which include targets that seek to improve water quality by reducing pollution and halving the proportion of untreated wastewater globally. Reducing the energy usage and emissions associated with wastewater treatment will be an essential step for a more sustainable future – according to estimates by the International Energy Agency, total energy consumption for the water treatment industry is expected to increase by 130% through 2040.

The Centre is Considering a Foreign River Management Model After seven years of Namami Gange

India is looking towards the European and US river rejuvenation model for future policy planning and river management in the Ganga basin.

After a recent meeting, the National Mission for Clean Ganga's (NMCG) Executive Committee, recommended a proposal by the Centre for Policy Research (CPR) on the relevance of the European experiences for Namami Gange Programme (NGP).

The second project calls for developing new and innovative methods of mapping environmental changes along nallas throughout the Ganga Basin by Professor Anthony Acciavatti, Yale University, United States.

This comes when the NMCG has repeatedly said that the foreign river cleaning experiences are not suitable for the Ganga programme. That is because rivers in India are mainly rain-fed and the flow of water keeps changing throughout the year. Plus, lakhs of people are dependent on the rivers for survival.

On the CPR proposal, it was briefed to the NMCG's Executive Committee that the review of the literature about rejuvenation of European transboundary river rejuvenation be used to build an India-relevant critical narrative for learning from and to promote future research to inform policy thinking about Namami Gange Programme and rejuvenating India's rivers.

Recommending the project, the EC observed that the importance of the project can be further examined in respect of its scope and objectives and its financial outlays as well.

The EC also considered 21st Century Civic Infrastructure for the Ganga Basin by Prof Acciavatti of Yale University to develop innovative methods of mapping environmental change along nallas throughout the Ganga River Basin.

Sahara Industry and DuPont Collaborates to Provide Clean and Safe Water



Sahara Industry, a prominent name in water and wastewater treatment and DuPont, one of the leaders in water technologies and products has partnered to increase access to safe water in 3 leading states of South India. With a focus on providing innovative water treatment solutions in Andhra Pradesh, Karnataka & Telangana. The partnership combines Sahara Industry's expertise in water filtration and

purification with DuPont's competence in technical and membrane solutions.

Both the organizations intend to improve water quality through innovative and technologically advance water treatment solutions available to people which are sustainable, can scale up and make water clean and potable at an affordable cost. Sahara Industry has expanded its product portfolio with the addition of 4" DuPont Membrane that are designed to enhance sediment removal capabilities and widen applications to address chemical contamination concerns.

Abdul Rahman Mohammed, CEO of Sahara Industry has commented on this partnership, "We are excited with this significant partnership and aim to improve water quality through innovation and assure that our customers will have protection against all contaminants from a particle of sand to invisible chemicals like arsenic and lead etc. It will help in protecting



not only the health of people, but also save the costly appliances from corrosion damages enhancing their period of utility. We firmly believe that with technology and optimisation; we offer a complete range of filtration products which can be combined to filter harshest of water including taste and odour, lead and chlorine, and volatile organic compounds and chemicals. Sahara Industry has been showing great performance as we believe achieving more with less in our operations and we are motivated to continue the momentum into 2022."

Brief about Sahara Industry: Sahara Industry is one of the leading names in water treatment solution providers in India. In a legacy of about two decades, it has contributed immensely by making water safe for drinking, industrial and institutional purposes. The ISO 9001:2015 certified company; it has executed water and wastewater projects in the length and breadth of India as well as in several other countries. The technologically advanced machineries and manufacturing solutions combined with professional engineers and well-qualified teams has helped it to achieve the rare feat of being an indigenously creator of advanced water and wastewater treatment solutions matching with world standards.

Banka Bio Acquires Enzotech – A Chennai–Based Water Treatment Company



Banka Biolo Ltd., India's one of the well-known sustainable sanitation solutions company has announced that it has received approval from the board to acquire Enzotech Solutions Pvt. Ltd, Chennai-based water treatment and recycling solutions company. The acquisition will help the Company offer a full suite of products and services for wastewater infrastructure in EPC (Engineering, Procurement, and Construction), and re-engineering projects with long-term operation & maintenance contracts.

The acquisition is a 100% all-stock deal, wherein the Company will acquire 100% of Enzotech in exchange for new shares worth INR 43 million. The Company will finance future cashflows through internal accruals and cash balances. This acquisition is in line with the Company's strategy to introduce new products and services for wastewater businesses to cater to the urban demand across residential, commercial, and industrial applications.

Namita Banka, Managing Director, Banka Biolo, said: "We warmly welcome all the employees of Enzotech Solutions Pvt. Ltd, to our group, and look forward to working together. Water and wastewater management is fast becoming a major challenge for the government, society at large and is further propelled by the growing awareness and need for proper hygiene and sustainable sanitation solutions. More so, this is a fundamental environmental concern as well."

Vishal Murarka, CEO, Banka Biolo, said, "CPCB (Central Pollution Control Board) report depicts that existing wastewater infrastructure treats only 21% of the generated wastewater, and untreated wastewater is a major source of pollution for our water bodies and India lost more than 73 million man-days due to water-borne diseases. We believe that demand for product and services in this segment will grow exponentially, and Enzotech acquisition will help us augment our capabilities to effectively address this market, and we all are excited about this opportunity."

1,000 Privately Installed Sewage Treatment Plants in Hyderabad to be Audited by ASCI



The Private Sewage Treatment Plants (STPs) installed in hospitals, gated communities, apartments, big hotels, and office buildings in Hyderabad have not been giving the desired results. It has been now decided that Hyderabad Metropolitan Water Supply and Sewerage Board (HMWS&SB) and Administrative Staff College of India (ASCI) will carry out performance evaluation and annual audit of private STPs for all the consumers having a private STPs in their premises from February.

It is estimated that Hyderabad Urban Agglomerate (HUA) has 1,000 private decentralised STPs installed in their premises with an estimated installed capacity of about 150 to 200 MLD. The STP auditing which will start from February and will continue for next three to four months. The audit of private STPs will be conducted once in six months. The decision to audit the STPs was taken as per the directions of the MAUD Minister K T Rama Rao.

Trained personnel from NGOs and ASCI will visit private STP sites and collect data and samples and deposit the same at ASCI, Lab for wastewater analysis. ASCI will undertake the quality assurance by periodically visiting the STPs and collecting, analysing five per cent of samples as third party validation.

The State government is spending a whopping INR 3,866 crore for constructing 31 STPs in the city with the sole aim to treat sewage. Once completed, Hyderabad will become the only city in the country to have a capacity to treat 100 per cent sewerage water. At present, the city has STPs to treat 772 MLDs which accounts for just 46.75 per cent of total sewerage water produced. The new STPs will create additional capacity to treat 1,260 MLD.



Mahesh Kothiyal
Senior Marketing Manager
Water Utilities, Xylem India

Mahesh Kothiyal is currently Senior Marketing Manager – Water Utilities at Xylem India, responsible for marketing and promotion of existing and newly launched products in the region. He holds degree of Master's in Environmental Engineering and has over 14 years of experience in sales, business development and marketing of water and wastewater treatment products and projects.

www.xylem.com/india

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SMART WATER TECHNOLOGIES FOR SUSTAINABLE WATER MANAGEMENT

Water is a precious resource that needs proper management. Water industry ICT advancements are gradually being employed to provide an alternative, smart, and distinctive solution to improve water management efficiency. These new technologies often known as smart water technologies include hardware, software, and analytics to assist water and wastewater utilities in automating, acquiring, and analyzing data to solve challenges. The deployment of smart water technologies aid in meeting the objectives like; reduce water wastage, improving the quality of water, efficiency enhancement of water systems, leakage control, consumption monitoring and many more.

The following are some of the key benefits of using smart water technologies:

1. Benefits for communities

- Increased water availability and affordability
- Improved customer experience
- Lowers risk of overflows and pollutants thereby protecting the environment

2. Operational benefits

- Accurate data lowers errors and improves decision-making efficiency
- Reduced downtime and predictive analytics

3. Financial benefits

- Lower operational and maintenance costs
- Improved cash flow due to proactive approach
- Increased revenue



4. Long-term resiliency

- Enhanced resilience to weather-related crises
- Workforce development
- Innovation

Xylem (XYL) is a leading global water technology company committed to solving critical water and infrastructure challenges with innovation. Our solutions span the entire water life cycle. From collection and distribution to reuse and return to nature, our highly efficient water technologies, industrial pumps, and application solutions not only use less energy and reduce life-cycle costs, but also promote sustainability.

Smart water metering and billing solutions

Xylem's Sensus brand integrates smart water meters, advanced sensors and software analytics with its long-range radio communication network, FlexNet. This advanced metering infrastructure enables utilities to actively monitor and dynamically optimize their water systems to better serve their communities.

Automatic meter reading solutions from Sensus collect water consumption, diagnostic and status data from devices, and then transfer that data to a central database for billing and analysis. Automated meter reading and billing can significantly reduce operational expenses.

Xylem's advanced analytic solutions helps water utilities use their data to increase revenue, operational efficiencies, and customer satisfaction. Through algorithms and data analysis, its Hidden Revenue Locator uses meter data to locate apparent losses in water systems. Its Cutoff Analyzer identifies and classifies non-paying customers according to their previous behavior, then proposes targeted interventions to decrease both cutoffs and delinquent accounts.

Global success stories of implementation of smart water metering and billing solutions:

- Thames Water is the largest water and wastewater services provider in the UK, serving 15 million customers across London and the Thames Valley. As London and the Southeast of England

are severely water-stressed areas, the utility wanted to prevent a predicted shortfall in water supply by investing in smart water technologies that improve operations. A smart water metering network was installed, developed in part by Xylem Sensus. The solution delivers accurate daily data reads from across the entire network. This enables customers to better understand their water consumption via an online usage report, which led to customers using 13% less water. The network ensures accurate billing for each customer, since they only pay for what they use. The utility can also quickly identify leaks or pipe ruptures.

- Nashville Metro Water Services serves more than 191,000 customers. The utility's technicians had to manually read meters, a time-consuming process that often-involved remote areas, hazardous road conditions, poison ivy and bug bites. Since the utility only collected meter reads once a month, it relied on customers to report unusually high-water bills before investigating the source of a leak or a billing inaccuracy. With Xylem Sensus technology, the utility now collects meter data remotely. This has reduced the cost per meter read by 95 cents, saving \$181,000 per month. At the same time, the utility has improved working conditions for technicians, and can detect leaks before a customer's bill soars.
- The City of Fountain Valley, California, sought to increase its drought resiliency by deploying advanced metering Infrastructure. The city selected Xylem's Sensus Smart Utility Network solution, which enabled their team to monitor high volume consumption and identify leaks, resulting in a 23% decrease in water consumption and the achievement of ambitious conservation goals.
- In India, Pune Municipal Corporation (PMC) adopted Xylem's Smart Water Meters to better gauge water consumption, investing in more than 275,000 Sensus iPERL™ meters to monitor, measure and manage activity across its network. It is the first-ever city-wide deployment of smart water meters in India with the aim to reduce non-revenue water by more than half.
- The City of Dallas water infrastructure includes 3,700 water connections across 38 miles of water line. The utility team's constant goal is superior service for the city's 14,000 residents. After analyzing annual water loss audits for the city, it was



discovered that there is significant issues around non-revenue water. In 2014, real and apparent water loss accounted for 31.3 million gallons—nearly 20 percent of the city’s total water supplied for the year—which meant lost revenue for the city. The city decided to replace its existing water meters with a system that could more efficiently identify issues to help minimize non-revenue water. They replaced approximately 320 meters in one subdivision—and chose Sensus iPERL® residential water meters for the project. The results of the city’s initial iPERL deployment were immediate and quickly translated into real savings. In just four months, the city billed for an additional 600,000 gallons of water in the subdivision thanks to the Sensus meters. Based on the success of the Sensus rollout in just one subdivision, the utility is now deploying a full Sensus advanced metering infrastructure (AMI) solution across its entire service area. So far, the city has upgraded about half its existing meters with iPERL meters. The city is also implementing the FlexNet® communication network, a two-way system that will allow city staff to remotely monitor water usage and increase billing accuracy.

- The City of Grand Rapids water utility began a meter replacement program to upgrade aging infrastructure and advance its smart city vision. Grand Rapids’ upgrade of 80,000 endpoints includes the FlexNet communication network, iPERL residential water meters, OMNI commercial meters and connecting to customer-owned sewer meters. These upgrades have allowed the utility to increase efficiency and build sustainability for the long term, along with exploring new ways to leverage its enhanced connectivity.

Xylem Avensor Smarter Approach to Manage Water Infrastructure Assets. Xylem Avensor is a digital service that provides alerts and data-driven insights from a device connected to your pump

stations or other water infrastructure assets. Avensor provides connectivity and remote data access to your assets. This will allow you to gather alarms, operating data, and additional insights to reduce the risk of downtime and better use your resources.

Avensor can connect assets and monitor them in real time, allowing for real-time data and analysis to be used to make decisions. The service includes 24/7 expert monitoring by Xylem to ensure availability of the application. The monitoring technology gives out automatic notifications to utilities, commercial buildings, and residential houses, allowing for early diagnosis of problems. Remote data and actionable insights can assist to cut down on-site visits and operational expenses.

It can be used with a range of pumps, mixers, and sensors, including Xylem’s Flygt Concertor intelligent pumping system, and offers plug-and-play compatibility with Xylem products, as well as flexibility, including API, for integration with customer systems. Avensor is an affordable alternative to advanced SCADA systems, where integrating new devices can be complex and costly. The system can connect assets by leveraging existing systems while protecting data.

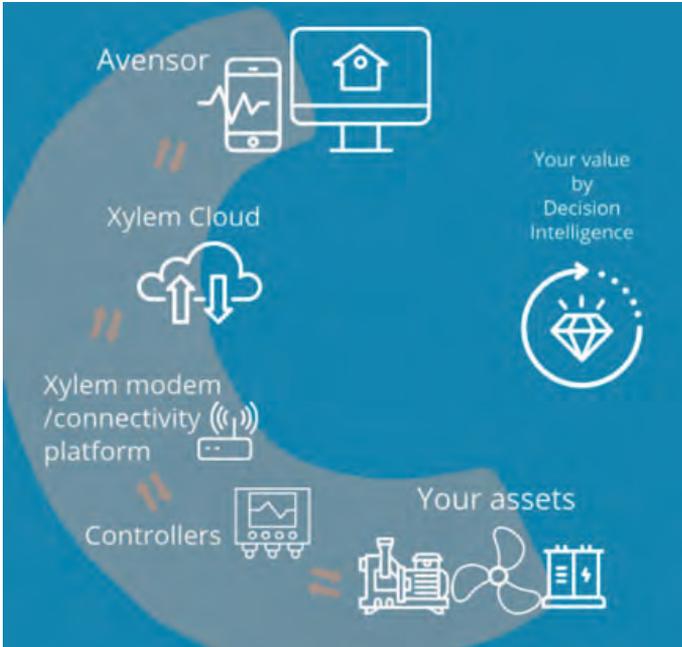
Avensor Success Casestories

- The Port of Trelleborg is the biggest Ro-Ro port in Scandinavia. With the new legislation ships cannot dispense any gray and black water into the sea as from 2021. Customer had big issues with malfunctioning wastewater pumping stations negatively affecting the port operations and revenue streams to the port. In the solution from Xylem, three pumping stations were upgraded and Concertor XPC were installed by the Xylem Service team. CCD modems were installed in the pumping stations with Avensor. As a result, the pumping stations started running without any issues and the customer is in full control of the pumping station after using Avensor. Alarms (if any!) are sent directly to Harbor port staff that can manage them in the Avensor application and act promptly to avoid disruptions in the port operation.



- The Uppsala Municipality currently manages the pumping and treatment infrastructure including the storm water infrastructure of the municipality. Customer manages old pump stations equipped with non-Xylem pumps connected only through a high-level switch to collect minimum information. Expensive upgrades

are needed to collect more real-time information and connect the pump stations to the existing SCADA. In the solution to the challenge, 60 storm water stations were connected via the CCD modem and Avensor. Alarms were sent to the customer (on-call duty personnel will handle the alarms). As a result, the pumping stations are now running without any overflow issues and the customer is in full control through the alarm service. Alarms are sent directly to customer staff that can manage them in the Avensor application



Conclusion

Visibility is the crucial to making water systems more efficient, safer, and affordable. Xylem is committed and working consistently to delivers digital analytics and smart solutions to help visualize network activity, improve system performance, and proactively protect assets and communities to ensure continuity and resilience.

References:

Digital Water Report – The International Water Association (IWA) (https://iwa-network.org/wp-content/uploads/2019/06/IWA_2019_Digital_Water_Report.pdf)

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HARVESTING THE VALUE OF DATA: A DATA ARCHITECTURAL SMART SOLUTIONS APPROACH FOR ENABLING DIGITAL WATER

Siddharth Seshan^aDirk Vries^aMarcel Zandvoort^bAlex van der Helm^bJohann Poinapen^a

^a**KWR Water Research Institute** based in the Netherlands, is a leading international research institute operating at the heart of an engaging network of partners who collaborate to co-create science based, tailor-made solutions for local problems in the water-energy-food nexus. One of the research areas of KWR is Hydroinformatics, with specific expertise in developing and implementing smart water solutions and the Digital Water transition. KWR is currently supporting the Indian water sector by exploring opportunities to apply the knowledge and skills gained from the Fiwater4W and other smart water management projects to assist in shaping a water-wise India.

^b**Waternet** is the only water company in the Netherlands that covers the whole water cycle. Waternet is responsible for all water related activities in and around Amsterdam, which include drinking water treatment and distribution, wastewater collection and treatment. We ensure that the surface water is kept at the right levels, the Amsterdam canals are clean and that the dykes are up to standard. These topics are important for everyone and we operate at the very heart of society.

www.kwrwater.nl & www.waternet.nl

Introduction

The development of smart water solutions for our water infrastructure is a rapidly advancing topic within the water sector. Over the past decade, more and more water utilities, research institutes, and the private sector are pursuing the development of solutions that enables the end-user to monitor, automate and identify the optimised control of key processes in water and wastewater infrastructures. These key and enabling technologies are being viewed as a necessity in order to tackle the extreme water challenges we face globally due to the harmful effects of climate change. Additionally, the rapid advancement in the fields of Internet of Things (IoT), advanced sensors, data analytics, Business Intelligence (BI), and Artificial Intelligence (AI) – has led to a major transition of the water sector and towards a more digitally enhanced and data-centric ecosystem.

This transition gives the opportunity for the water sector to be transformed and optimally benefit from the implementation of these upcoming technologies. Some key building blocks in the digitalisation of operational services in the water sector are seen to be the following:

- Increased deployment of instrumentation and sensors: Water utilities have increased their monitoring and measurement campaigns a great deal, thereby leading to lots of data signals now being available for key process parameters within the entire water cycle.
- Development of data-driven AI models to forecast and achieve optimal control: With the widespread use of Machine Learning techniques and Artificial Intelligence algorithms, the water sector can now benefit from such methods with the possession of large datasets. Data-driven models can be developed for the purpose of data quality control and replacing a failed sensor (soft sensors), forecasting key process variables, and supporting process technologists in making informed decisions to achieve (completely) automated process control.
- Upgrading of the water utilities' data architecture and ecosystem that supports an automated (near) real-time monitoring and control: The Process Automation (PA) and IT architecture may require renewal to achieve real-time optimized plant-wide control, as opposed to conventional control loops that rely on a single process. Additionally, some external data sources, such as weather-related datasets, can be crucial information for the control of a water system. Therefore, a standardised architecture that can enable the eradication of data silos that exist between varying data sources and sectors, would greatly facilitate interoperability between systems.

With the above-mentioned key building blocks, the value of water can be combined with the value of data and knowledge, thereby steering the water sector to the new age of digital water. Such an upgrade can result in sustainable and self-sufficient exploitation of water for consumption, through the use of innovative technologies. To achieve this, the water sector has begun its journey of transition, by implementing digitalisation and integration tools that will enhance the sector's stance in achieving resilient and optimised water services.

FIWARE– A Cross–Domain Smart Solutions Platform

As highlighted above, an imperative in the digital transformation of the water sector is a data and IT architecture that can support the next generation of internet services and enable cross-domain data exchange. Here, we focus on the application of real-time optimised control and automation using a next-generation data exchange platform. A data ecosystem solution that is currently gaining momentum in the European context is FIWARE (www.fiware.org). FIWARE is an open-source, smart solutions platform with an aim to support Small and Medium-sized Enterprises (SMEs) and developers in the creation of smart applications in multiple sectors. FIWARE's intention is to become one of the main open and sustainable ecosystems for Smart City initiatives that can achieve easy cross-domain data exchange and cooperation, thereby eradicating data silos that hinder the progress of the development of next-generation Internet services. Key aspects of FIWARE include its interoperable nature by design, the use of open (data) standards, and the ambition to achieve cross-domain cooperation.

FIWARE has made considerable progress in other sectors such as Energy, Transportation, or Telecommunication, with regards to the Smart Cities concept. However, in the water sector, progress in the development of smart applications using FIWARE has been made only recently. Therefore, through a directed call by the European Commission in 2018, five sister projects were initiated to introduce the concept of IoT compliant approaches for the water sector. The projects are Aqua3S (www.aqua3s.eu), Digital Water City (www.digital-water.city), NAIADES (www.naiades-project.eu), ScoreWater (www.scorewater.eu) and Fiware4Water (www.fiware4water.eu). The common component among the projects is to investigate and develop open-source FIWARE compatible applications for the water sector. The five projects combined compose a synergy group called Digital Water 2020.

Fiware4Water – A Study to Investigate the Use of FIWARE in the Digital Water Transition

The Fiware4Water project (www.fiware4water.eu) intends to link the water sector to FIWARE through the demonstration of its capabilities within different stages of the water cycle. The demonstration cases include smart applications for raw water supply, drinking water supply, wastewater treatment, and customer interaction. Within the project, the potential of its interoperability and standardised interfaces are being investigated for both water sector end-users (such as water utilities, citizens, consumers, and cities) and solution providers (private utilities, SMEs, and developers).

More importantly, the project aims to also demonstrate how linking FIWARE within the water sector can be nonintrusive and integrate well with legacy systems as depicted in Figure 1.

A FIWARE-based architecture can bring major benefits for the water domain – such as bringing water into cross-domain applications, using standardised interfaces, models, and methods for interoperability, revealing the power of data, and boosting innovation in the water domain. Fiware4Water tackles digital water challenges, by linking the physical

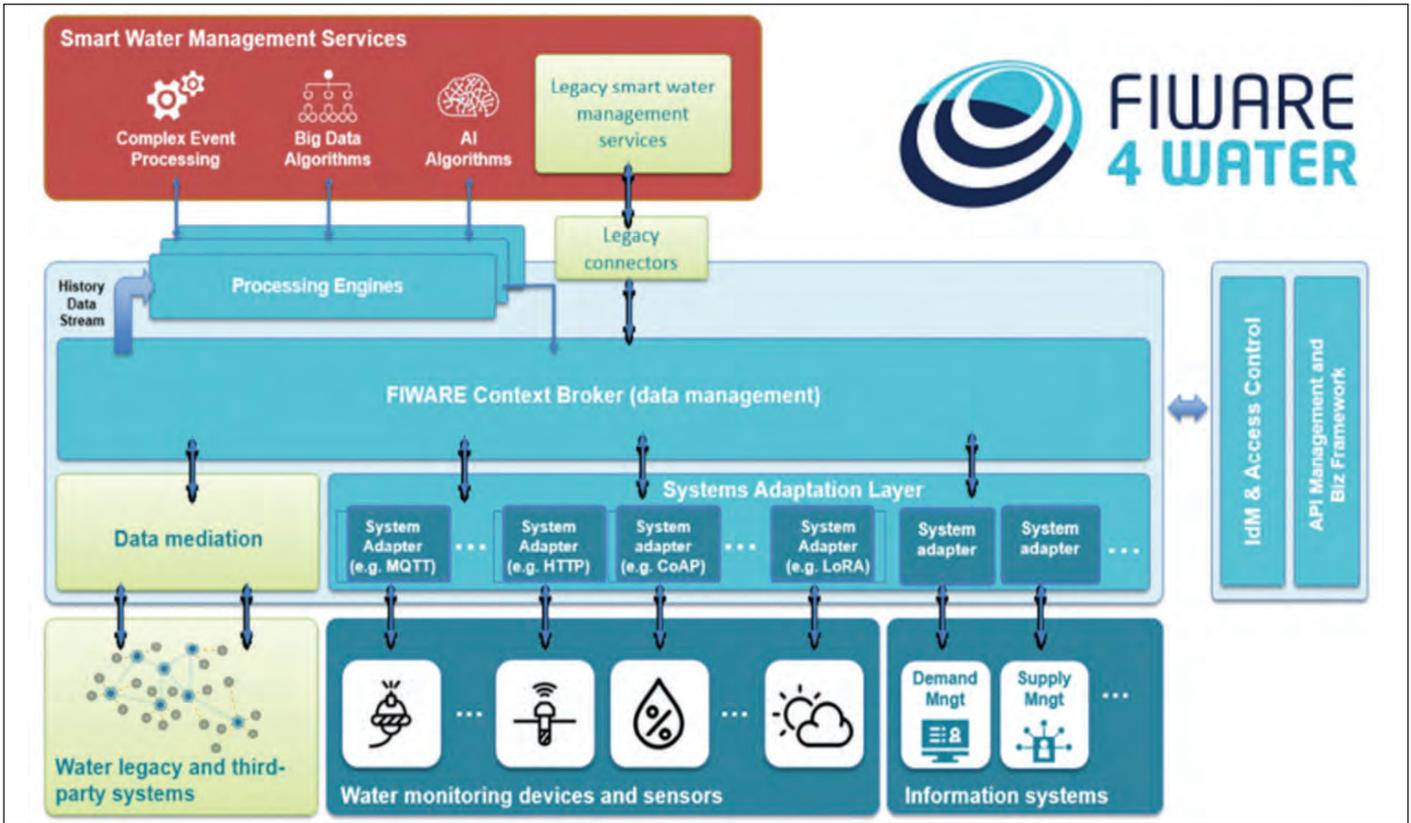


Figure 1: Fiware4Water structural concept with links to legacy systems (Source: fiware4water.eu)

and virtual worlds and providing technology enablers that simplify the generation of effective knowledge and deployment of personalised smart applications.

Case Study – Intelligent Control for Wastewater Treatment in the Netherlands

KWR Water Research Institute together with Waternet, the water utility for Amsterdam and surrounding areas, are working on a Fiware4Water demonstration project to achieve intelligent control of a wastewater treatment plant (WWTP). The Amsterdam West WWTP has a capacity of 1.1 Million population equivalent and serves the city of Amsterdam. The Process Automation of the WWTP along with the supporting IT architecture is in fast development in order to benefit from emerging digital transition and integration technologies. Additionally, Waternet is also investigating the upgrade of the control loops of the WWTP, by transitioning to a more plant-wide control using real-time data and external data sources that can feed process models.

To achieve plant-wide control and for testing smarting water applications, Waternet has transformed one treatment lane of the WWTP West into a research lane. Additional sensors measuring pertinent parameters have been deployed leading now to an increase in the available data signals. Data-driven control strategies can now be tested using newly developed AI models and data fusion techniques. The objectives of the

research are to minimize nitrous oxide emissions (a strong greenhouse gas), energy use, and sludge production while maintaining the effluent water quality targets. This contributes to Waternet’s overarching goal of achieving climate neutrality.

Smart Water Applications for Amsterdam West WWTP

With the development of smart water applications, automated plant-wide intelligent control can be pursued. The smart applications comprise of an AI-based data validation tool for data quality control, soft sensors that accurately predict key process variables, a digital twin AI model describing the process behavior and an AI control model that determines an optimal trajectory. All smart applications are being developed and tested in the designated research lane.

KWR Water Research Institute has developed an AI-based data validation framework for the Amsterdam West WWTP. A key aspect that must be considered prior to applying data-driven strategies and AI models is data quality. Typically within the context of treatment plant-wide data, the quality of data can be impacted by sensor faults, sensor calibration issues, fouling and obstruction of the sensors, and connectivity problems between sensors, actuators, and data management systems. This can lead to the hampering of advanced data-driven monitoring and control of (critical) water operations. As a result, data quality checks and corrections are needed. The data validation framework encompasses

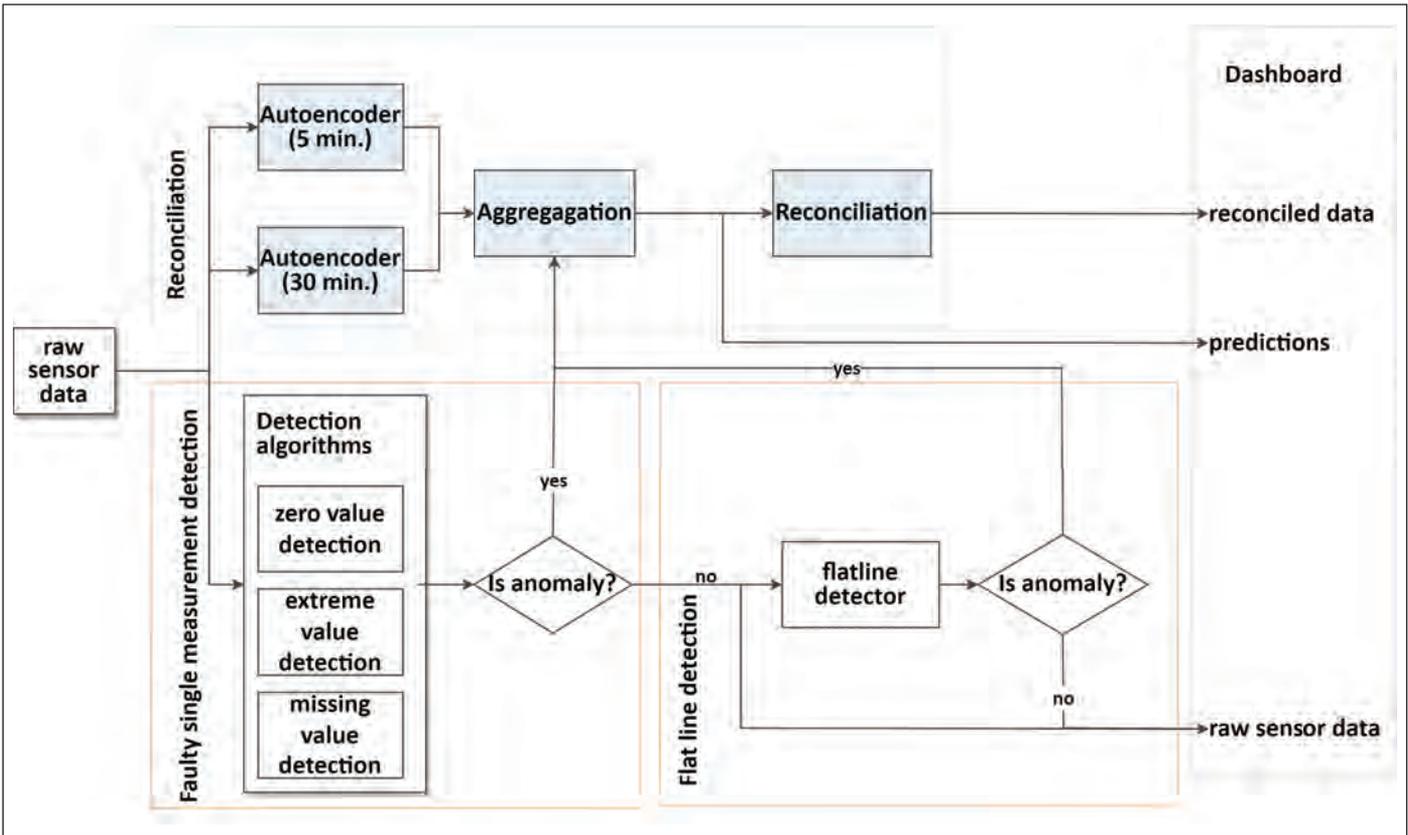


Figure 2: Scheme for AI-based data validation conducting sensor anomaly detection and reconciliation

an anomaly detector that uses (statistical) threshold techniques and a data reconciliation part that aggregates predictions from deep learning models whenever an anomaly is detected. The framework was tested on ammonium and nitrate data signals from an aerobic tank of a bioreactor unit in the research treatment lane of Amsterdam West WWTP.

Within the anomaly detection component, algorithms have been developed to automatically flag outliers through user-defined and statistical measures, i.e. threshold-based detections, extreme shifts/jumps, and unfeasible flatline detection. For the data reconciliation, two recurrent neural networks based autoencoder models for each data signal, consisting of Long Short Term Memory (LSTM) and dense layers were trained and tested. The models were trained in order to be able to capture slow and fast dynamics of the signal using resampled data and different sequence sizes. Finally, the autoencoder model predictions were resampled and aggregated using exponential smoothing of the short-term constant autoencoder output to allow the long-time constant autoencoder to overtake the data reconciliation in medium-to-long forecasting horizons (1 hour or more). A schematic of the AI-based data validation framework can be seen in Figure 2.

The autoencoder models proved to have very high accuracy, as can be seen in Figure 3, wherein the case of the ammonium data signal, the autoencoder models' test performance has been shown when the raw

data is resampled to every 5 minutes (short-term dynamics) and every 30 minutes (long-term dynamics). This allows for a good reconciliation performance considering the variability of the signal.

Finally, the near real-time validated data signals and the raw data signals can be relayed to a dashboard. The validated signals will be used as a screening of data that will subsequently be ingested by other AI-based data-driven models enabling monitoring and smart control of the WWTP to minimize greenhouse gas emissions and energy consumption.

The Waternet team has already developed soft sensors to estimate key process variables of the WWTP. The first soft sensor replaces a number of inaccurate aeration flow sensor readings. The soft sensor is an AI tool that estimates the individual aeration flows to each of the seven aeration tanks, based on one accurate aeration flow sensor, the header pressure, and valve positions. This soft sensor is crucial to quantify the energy reduction possible through optimal control. The second soft sensor developed is the prediction of the influent flow of the treatment plant. Two AI models were trained and predictions performance was compared. The prediction horizon of the influent forecast model is 75 minutes with a sliding time horizon. Waternet has also developed a digital twin for the WWTP which describes the behavior of the treatment plant. This AI model estimates the state of more than 10 outputs, using an aggregation of over 30 input variables and has been linked to an

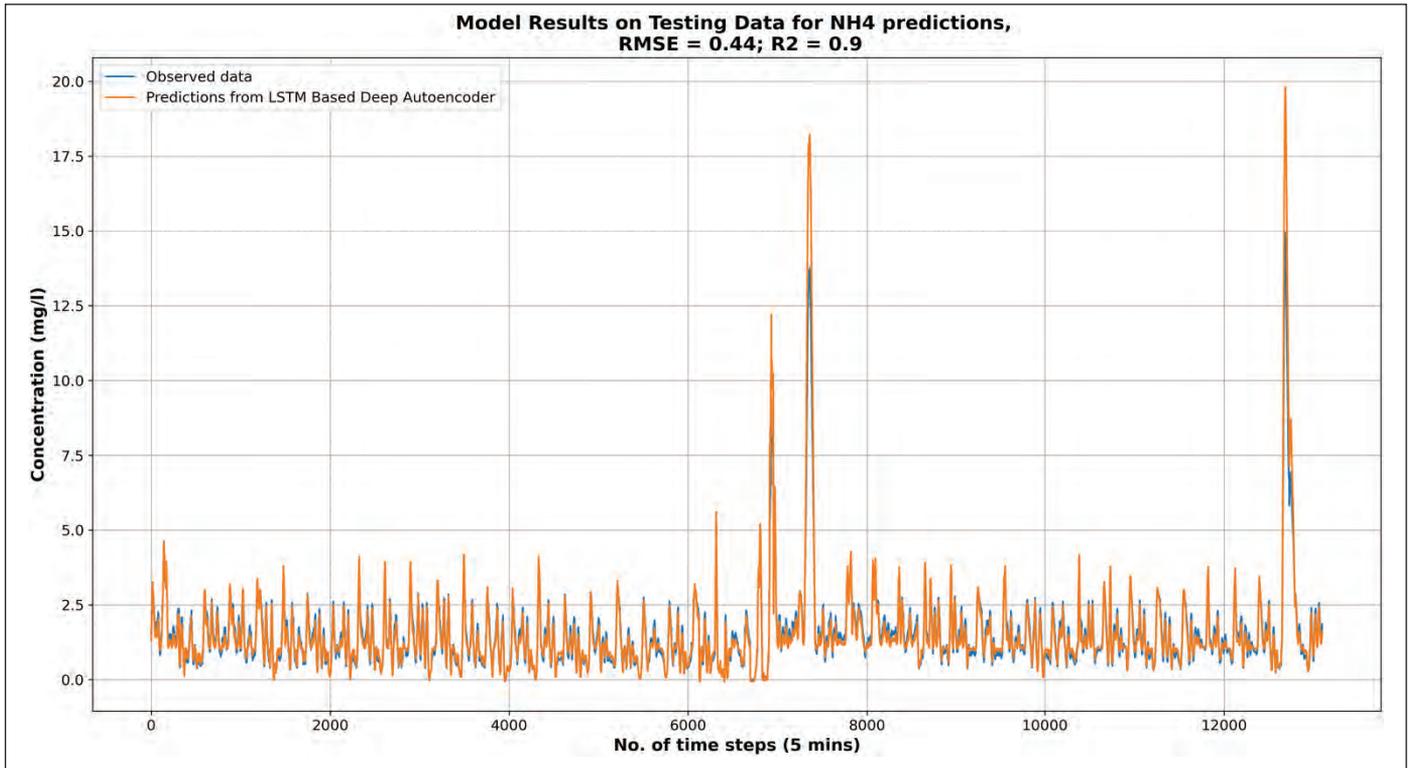


Figure 3A

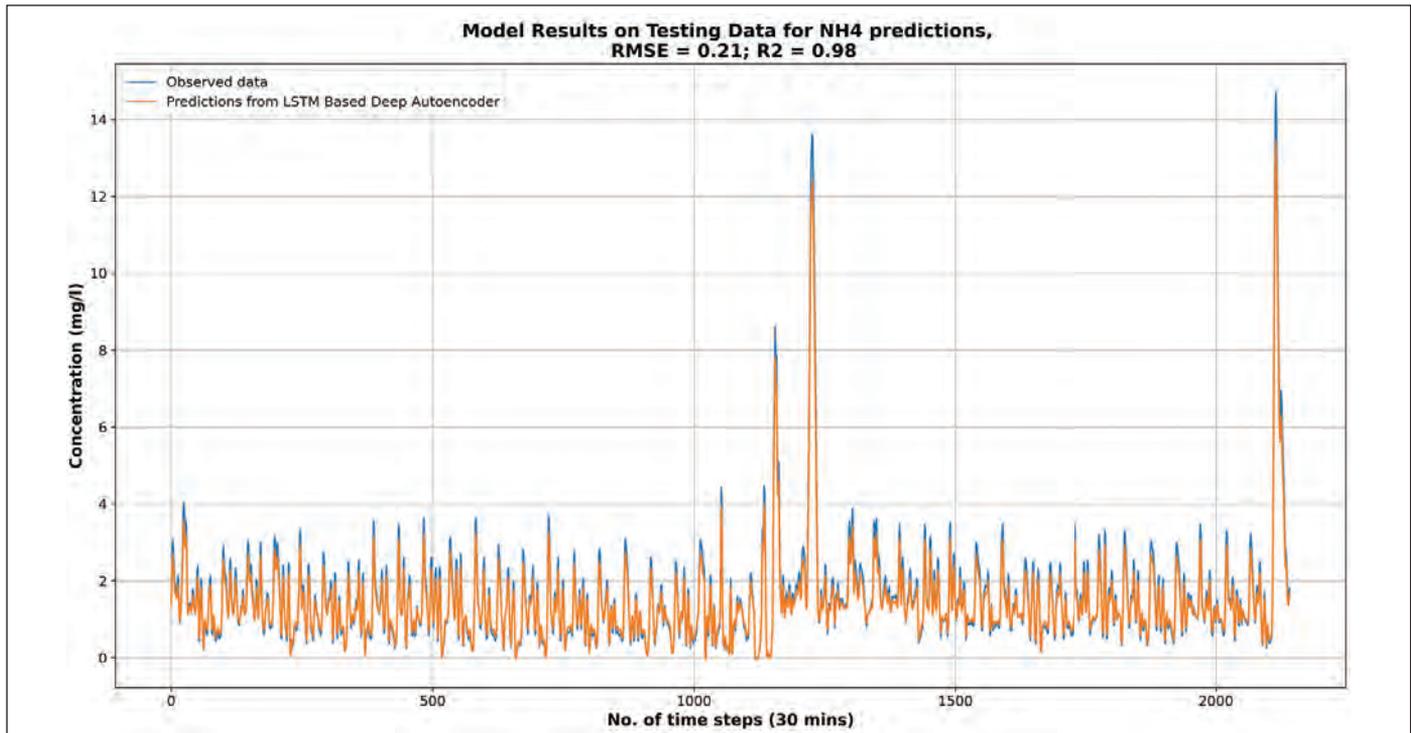


Figure 3B

Figure 3: Test results using raw data of the ammonium sensor (blue line) and the predictions of the autoencoder models in the case when data is sampled every 5 minutes (a) and every 30 minutes (b)

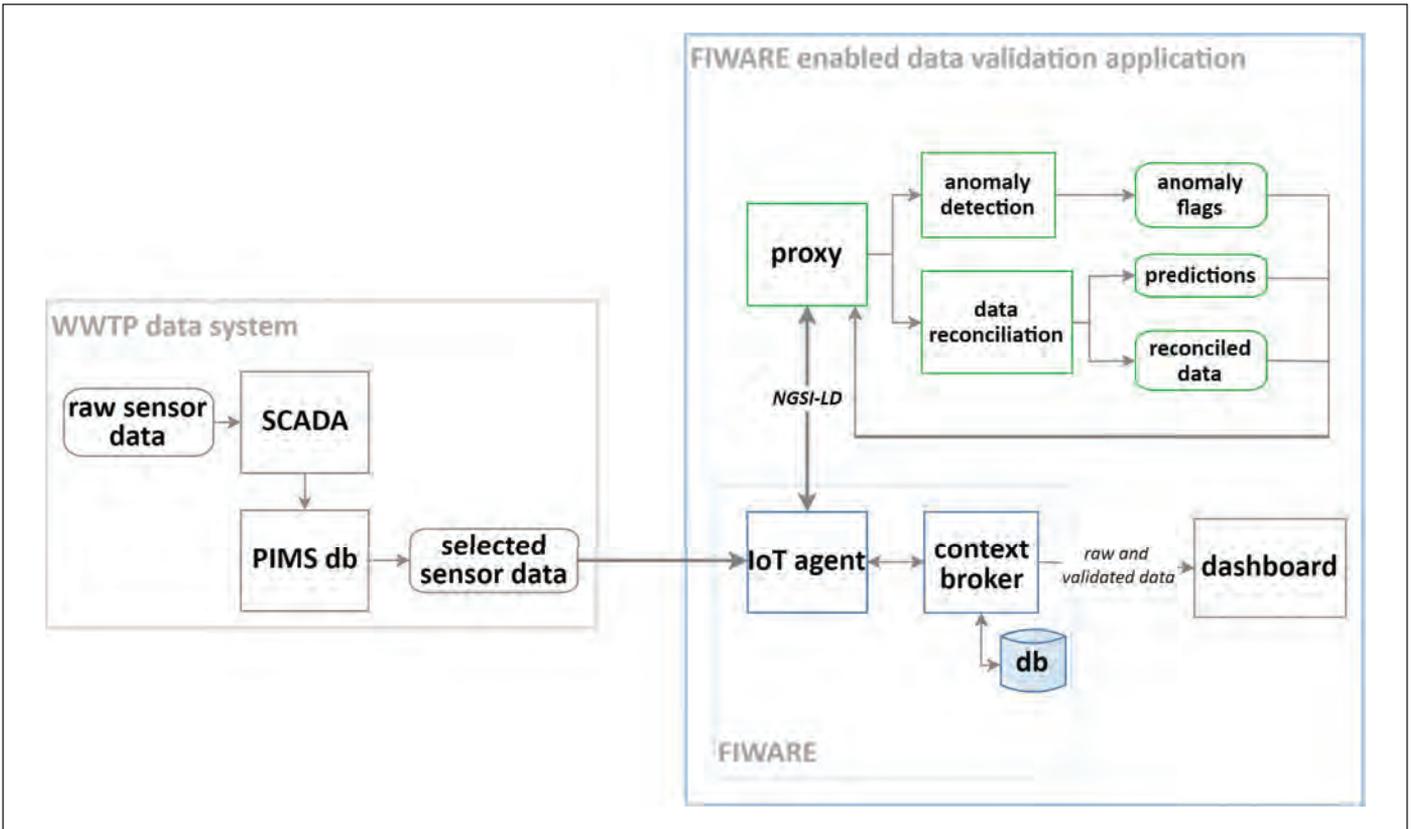


Figure 4: Simplified schematic overview of the data flows in the context of data validation within the architecture of the water utility

AI control model. The control model, which is based on reinforcement learning, determines the optimal control settings based on a reward system that includes energy use and nitrous oxide emissions. Once all remaining new sensors have been installed and sufficient data from the research lane have been collected to train the control model, the latter will be deployed and validated. Currently, the AI model has been successfully tested in other treatment lanes of the WWTP. The process automation system has also been modified, enabling the capability to use the setpoints determined by the AI control model.

Connecting Developed Smart Application with Fiware4Water Architecture

Through the Fiware4Water project, the smart applications developed for the case study will finally be integrated within a FIWARE architecture, while preserving the integrity and functioning of the legacy system. As an example to illustrate the integration of a smart application, Figure 4 provides a simplified schema that visualizes the connections between the legacy system, the AI-based data validation application, and FIWARE. The Distributed Control System directly communicates with the sensors installed in the research lane and the data can be accessed through the Process Information and Management System (PIMS). This legacy system can then communicate with the Fiware4Water architecture, which has now been integrated, tested, and deployed within a virtual test environment on-site. All communications within this architecture

are conducted using interoperable (smart) data models and APIs. The real-time raw data and the validated signals from the data validation application are relayed via the proxy and FIWARE setup towards a dashboard.

Conclusion

With the water sector undergoing a digital transformation, the development of smart water applications is a need of the hour, thereby utilising enabling and upcoming technologies such as data-driven AI modelling, that can result in the upgrading of water utilities' IT and data architecture to achieve automated plant-wide control. Additionally, FIWARE can accelerate the transition of the water sector to optimally benefit from such key technologies and ensuring cross-domain cooperation (e.g. with energy). Today, many water utilities and authorities around the globe are benefitting greatly from such technologies and applications. India which faces formidable challenges in achieving water security and sustainability, due to its growing population and the impacts of climate variability, is ideally poised to harvest the value of data in the water sector. There are currently landmark programmes and schemes set up by the Government of India, namely the Namami Gange Programme, Smart Cities Mission, and other water-related schemes, where the development and implementation of a data architectural smart solutions approach for enabling digital water can help India to address its formidable water challenges. Accordingly, KWR Water

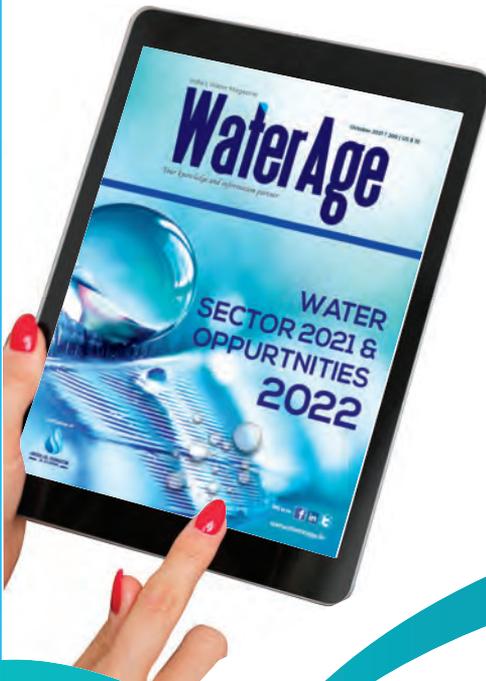


Research Institute is at the moment actively contributing to India’s vision by collaborating, partnering, and co–creating knowledge with relevant Indian stakeholders. It is KWR’s mission to share the combined relevant experience of the institute, the Dutch water sector, and partner’s all over the European Union with our existing and new partners in India. Smart water applications are a key theme for such a collaboration, among many more. Currently, KWR is actively collaborating with Larsen & Toubro Water and Effluent Treatment IC as a knowledge partner where the two organizations are actively exchanging knowledge and are initiating capacity–building activities, thereby beginning a collaborative journey to collectively tackle India’s water challenges.

Acknowledgements



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ENSURING WATER SECURITY THROUGH WASTEWATER REUSE

From being “Sujlam Suflam” to “Water Scarce”, India has seen a full circle of dwindling water resources. Increasing population and rapid urbanization coupled with industrialization has resulted in marked increase in water demand and policy makers will have to plan for new sources of water. The traditional sources of surface water and groundwater have already reached their threshold. Augmenting surface water sources are both costly and time consuming. New dam construction takes years because of land issues and population resettlement making it an extremely challenging option.

Reuse of sewage treated water offers an opportunity to supply treated water





for non-potable use. Industries are the best customers for treated water. There has been a thrust on reuse of municipal treated sewage water in the developed countries. Most of western developed economies are reusing the treated water and the percentage of reuse water is ranging from 5 to 25 %. There are multiple wins in reusing the treated water. Fresh water can be swapped with treated water for non-potable use in Industry (Power Stations etc.) and this fresh water can then be used either for citizens for drinking or for agriculture purposes. Reuse ensures quality treatment of sewage since reuse users are conscious about the quality of water. Revenue from the sale of treated water helps in developing a circular economy. Treated water offers a secured water source for the end user.

In a water scarce country like India, the reuse of municipal treated sewage water is all the more relevant. Currently the proportion of reuse water in India is almost Nil. China, a similarly large population country, on the other hand, is investing trillions of dollars for reuse projects. It is imperative that we bring a conscious change in our perspective and start to look at “Sewage” as “a resource” which is abundantly available

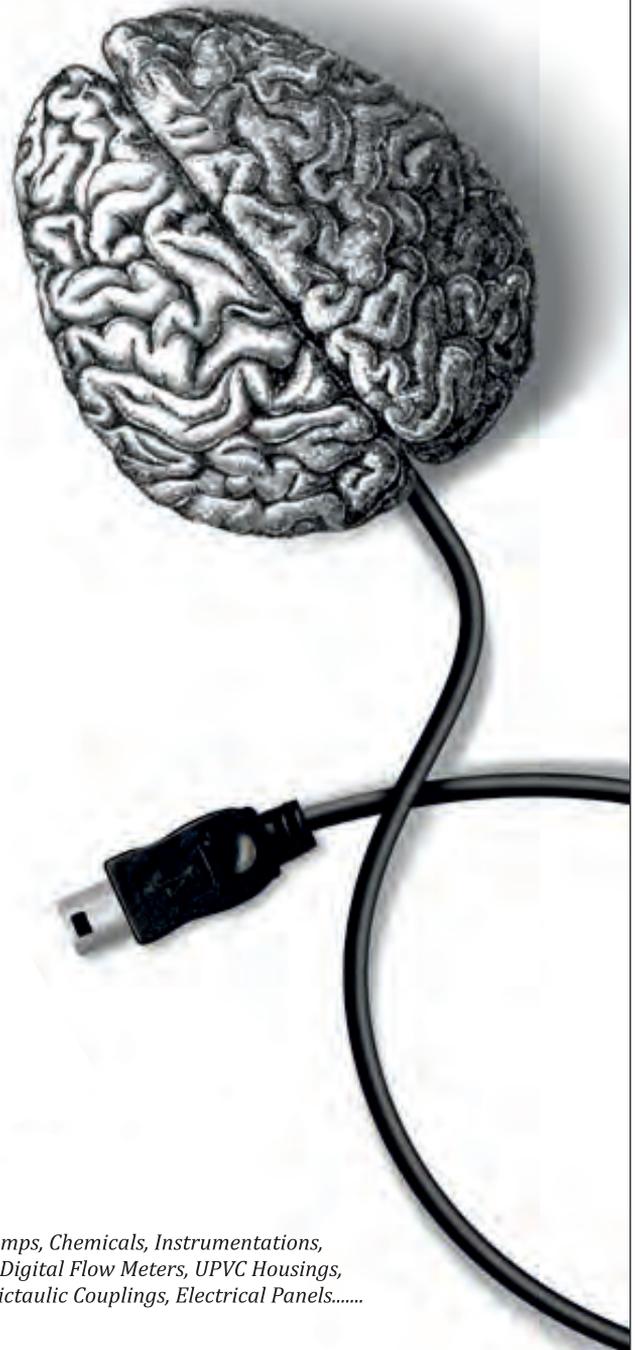
within the city limits. Reuse of this resource is a key component of the sustainable urban water management cycle. The industries with large water demand are the ideal candidates for reuse. Power plants which consume more than 70% of the industrial water have already been directed by the Government of India to use treated water if available within 50 kms of radius in the larger towns. Other industries like Steel, Oil Refineries, paper, textile etc. can also be offered treated sewage water.

Once industries start using treated water, the uninterrupted supply of required quality treated water needs to be ensured. So, a right project framework is needed for Reuse of water with the Industries. Projects on Public Private Partnership models like PPP or PPP-HAM aptly addresses the issues involved in supply of treated water. It brings in private investment and competence in the sector thereby reducing reliance on government funding. The skin in the game from the private operator also ensures quality and quantity commitment needed by the industry. It also reduces the overall time of project execution and offers a much needed service to the industries during the O & M period.



Reuse of sewage treated water by power plants was successfully demonstrated in Nagpur, India for the first time. Nagpur Municipal Corporation (NMC) launched a project for building 200 MLD STP through a PPP model with Reuse as an objective of end use of treated water. Vishvaraj Environment Pvt. Ltd. won this bid and completed the STP project through 100% private investment. NMC and Vishvaraj then approached MAHAGENCO (Power generation utility from Maharashtra for supply of treated water to its power plants. MAHAGENCO agreed to purchase 100 MLD treated water for Khaperkheda power plant and 90 MLD for Koradi power plant. Vishvaraj constructed the entire Reuse infrastructure consisting of tertiary treatment plant, pipeline and pumping station again through 100 % private investments. The entire project is commissioned and it is now more than 18 months that 190 MLD treated water is supplied to both the power plants. Equivalent 190 MLD (19 Cr liter per day) of water is saved and diverted to the city of Nagpur and nearby towns for drinking and agriculture thereby taking care of the next 20 years of additional demand.

Our nation needs more such projects to realize in the near future. There is an opportunity to treat and supply 6,000 MLD of treated water only to the power plants in India. The other industries offer even greater potential. Another advantage is the large scale sewage treatment facilities that get built as an integral part of a reuse project. So, reuse not only ensures water security on a sustainable basis but also ensures public health through proper sewage treatment.



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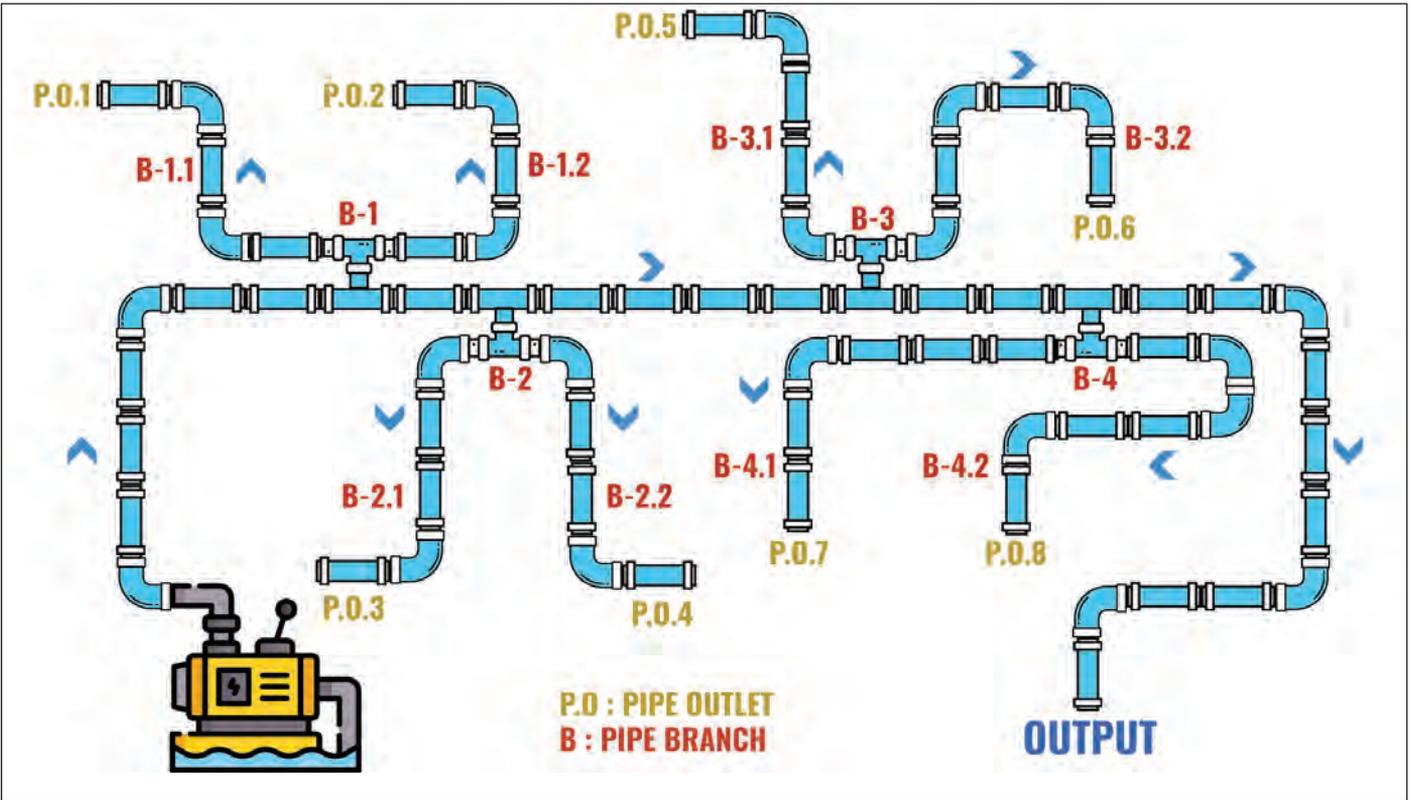
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NEW GROUNDWATER GUIDELINES FOR INDUSTRIES & SMART WATER MANAGEMENT TECHNOLOGIES

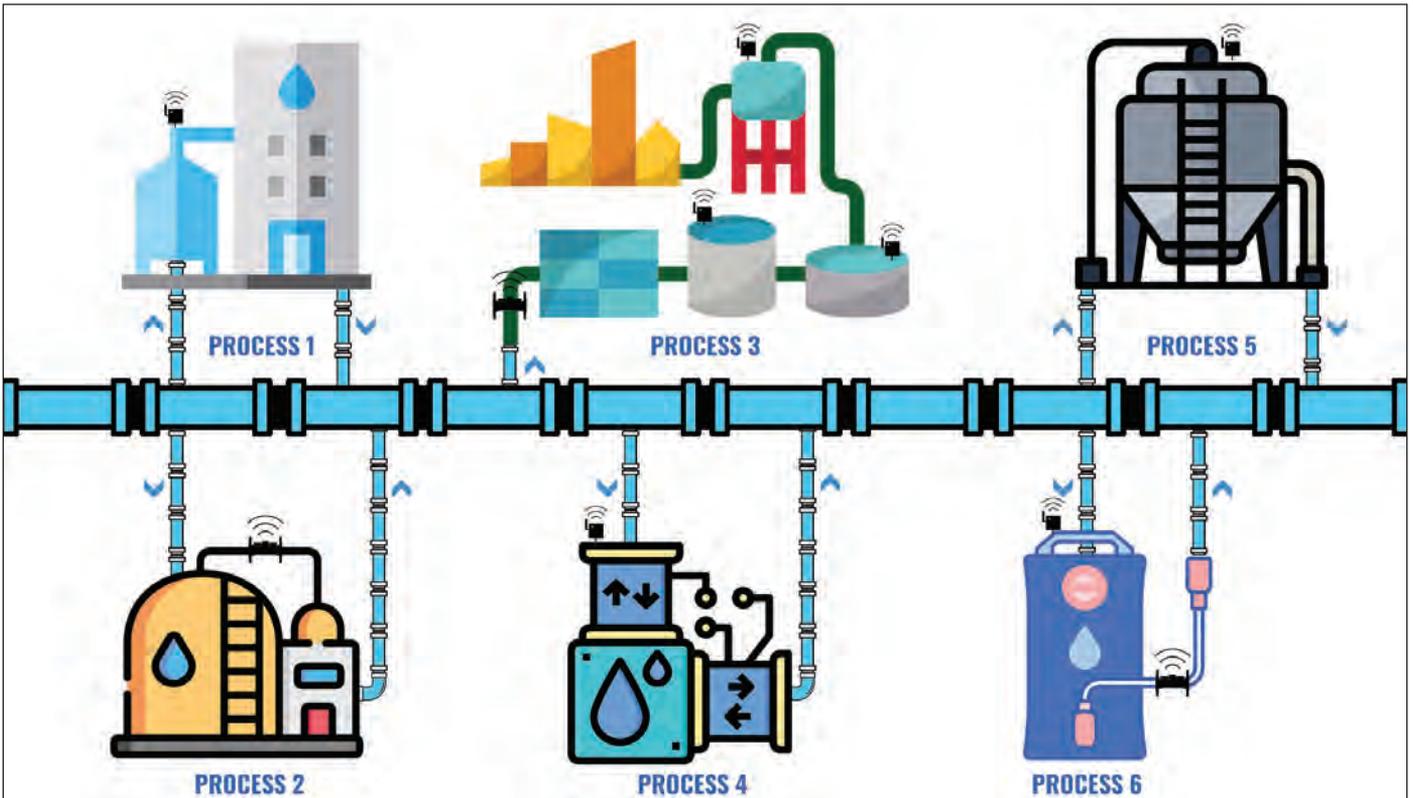
With the rapidly depleting groundwater table, NGT has passed orders for strong regulations on effective usage of groundwater especially targeting bulk water users such as industrial, commercial and bulk housing. After much discussion, Central Ground Water Authority (CGWA) released a gazette notification on 24-Sep-2020 with guidelines for groundwater extraction for industrial and infrastructure projects. Though the guidelines exempted projects drawing less than 10KLD from taking an NOC, there has been increasing pressure on CGWA not to dilute the regulations.

The current guidelines clearly indicate the regulations are going towards efficient and sustainable usage of groundwater for commercial purposes. Some of the outstanding moves in the current guidelines are 1) Annual Water Auditing for industries consuming more than 100KLD 2) Industries have to adopt suitable methods to reduce water consumption by 20% in 3 years 3) Installation of tamper proof flow meters with telemetry at groundwater abstraction structures 4) Hydrogeological and impact assessment report have to be submitted for projects drawing more than 100KLD in OCS areas.

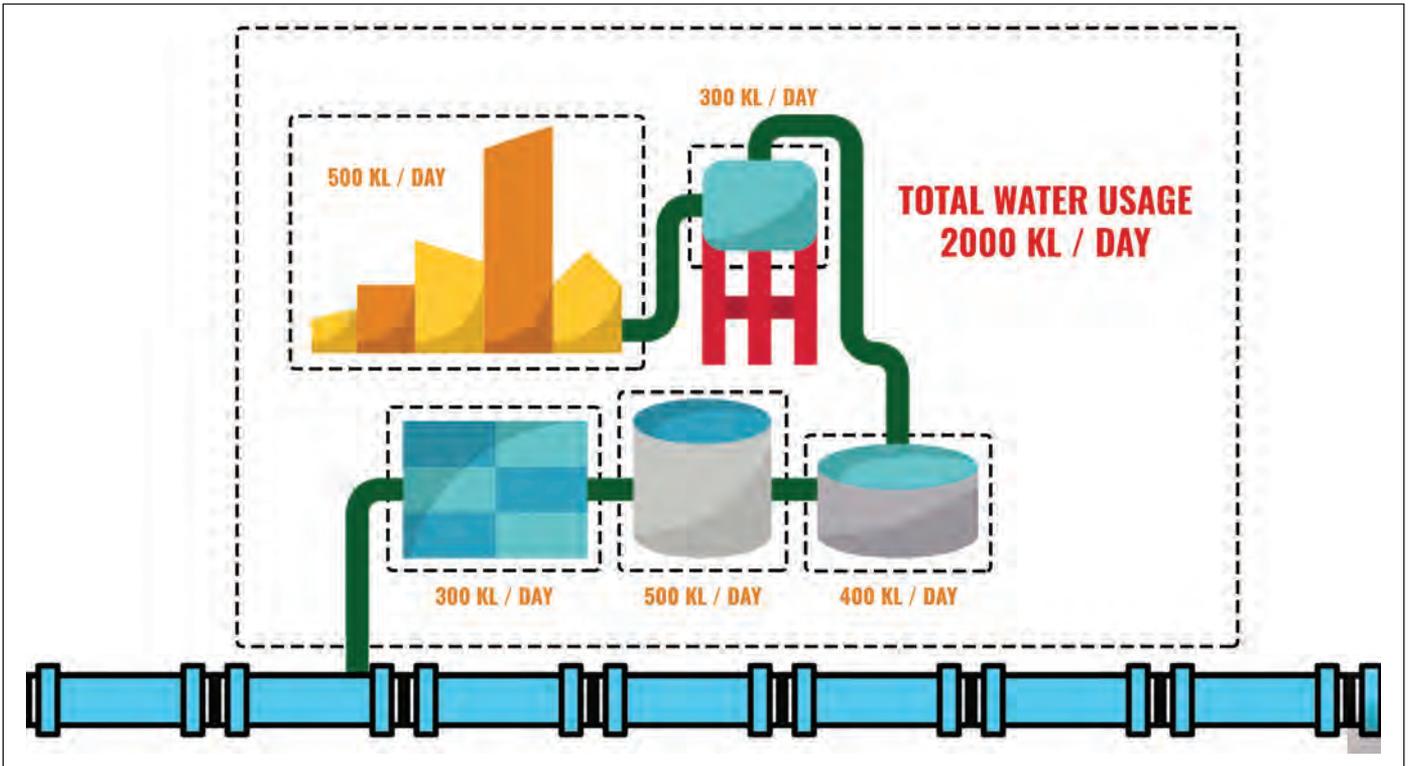
Though it may sound like a big deal for industries to reduce water consumption by 20% in 3 years, our experience says that it is practically possible to reduce the consumption by 20% in 3 years just by disciplined and informed usage of water without changing the major infrastructure. Many manufacturers/industries don't have the information they need to manage the water that flows through their processes—information that is critical for improving productivity. Technology providers are starting to develop products that can help these industrial companies improve the way they track their water usage and monitor their progress. Until now water management in India is majorly a guesswork based on heuristics. Most of the bulk water users including government departments are yet to adopt appropriate scientific methodologies for managing fresh water. The future is data driven



Modelling the entire pipe network

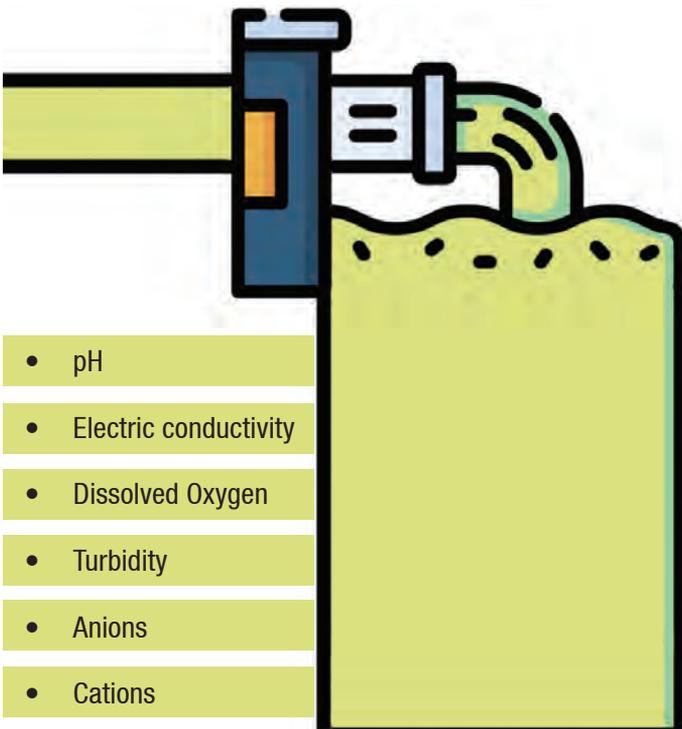


Segregating the batch processes for an industry type



Estimating the optimal water requirements for each process and sub processes

Testing the re-usability of the output water form each process exit



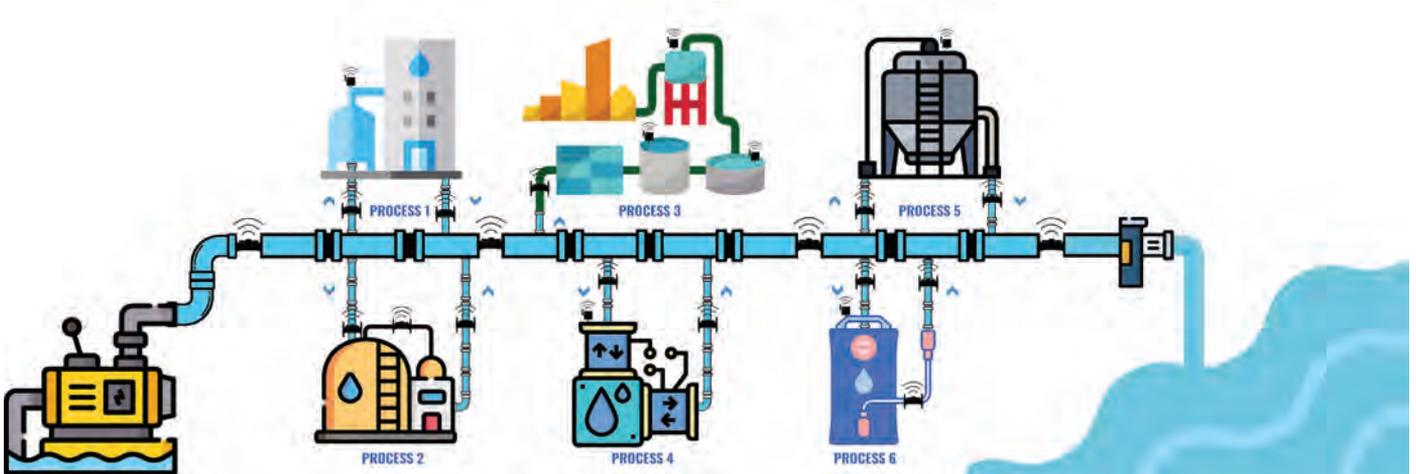
intelligent decision making to support water security and sustainability.

Collectively as a nation, starting from household water management to managing large water systems such as rivers and reservoirs should increasingly adopt data-driven water resources management techniques for effective use of our precious freshwater resources.

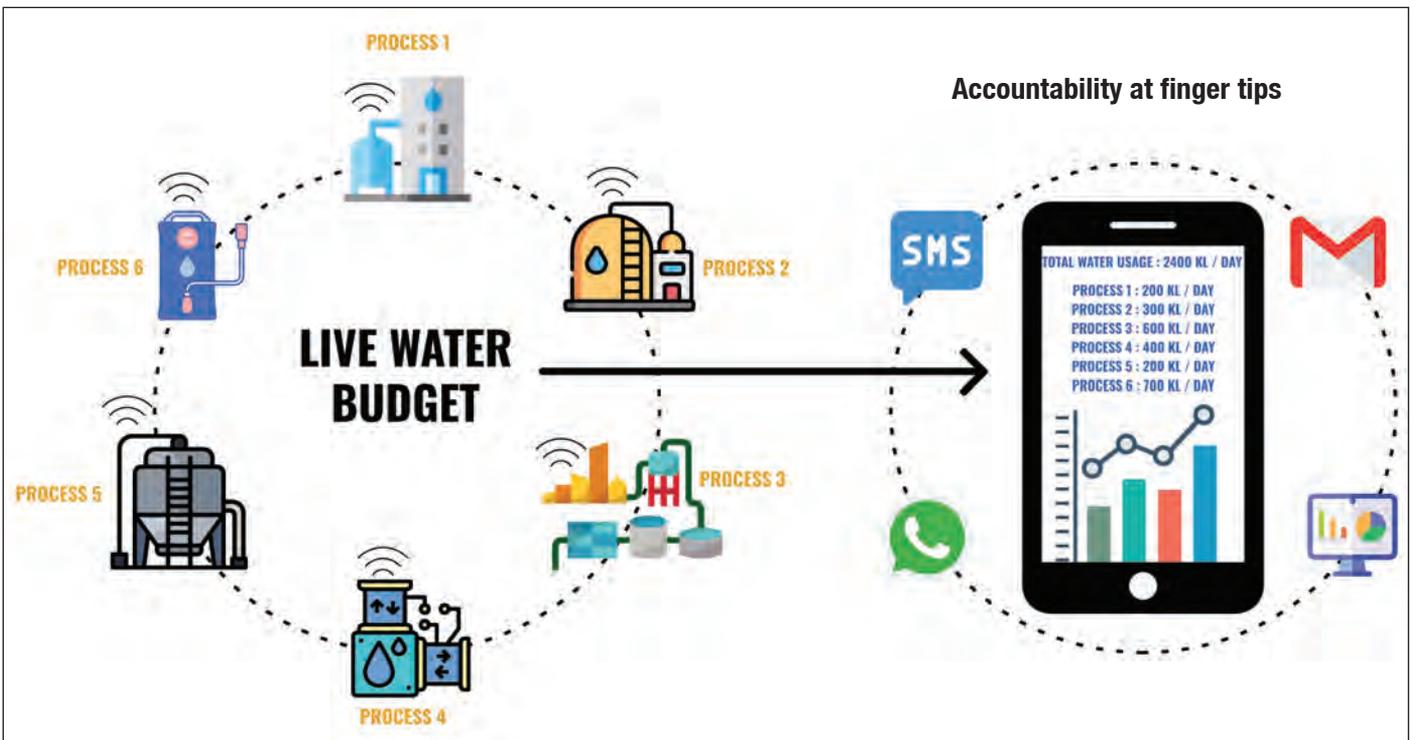
We at Kritsnam Technologies have engaged in extensive R&D for the past 7 years to solve our local problems in deployments, measurements and data usage. We have developed a suite of reliable IoT enabled instruments to remotely track the water levels and flow. The real-time level and flow data from these instruments is easily accessible to the users, right at their fingertips through SMS, WhatsApp, Web & Mobile apps.

Continuous Internal Water Auditing System

- Why should industries opt for Continuous internal water auditing system?
- Potential to reduce up to 20% fresh water extraction in 2–3 years (As per CGWA guidelines)
- Monitor the actual cost of water associated with the product unit economics – pumping, storage, and treatment
- Track the inefficiencies in water use, reduce water wastage and improve organically
- Regulate the load on ETP's
- Improve batch to batch product uniformity and product quality
- Be ready for ISO 46001 standard



Ultrasonic flowmeters and level meters to track water distribution continuously and transmit the data online



- Total pump working hours every day
- Identifying process inefficiencies
- Identifying the pump wear outs
- Identifying the leakages
- Trands of water footprint
- Water demand forecasts
- Real time alerts & notifications
- Eletricity bill forecaste



■ Prepare for upcoming stringent regulations on water usage

The Steps Involved in Continuous Live Internal Water Auditing System

- Digitizing the pipeline network from source till reject
- Identifying the different processes from fresh water input and waste water output
- Benchmarking the average water requirement per process
- Analyzing the output water quality for every process
- Indicating the strategic representative points to measure the water

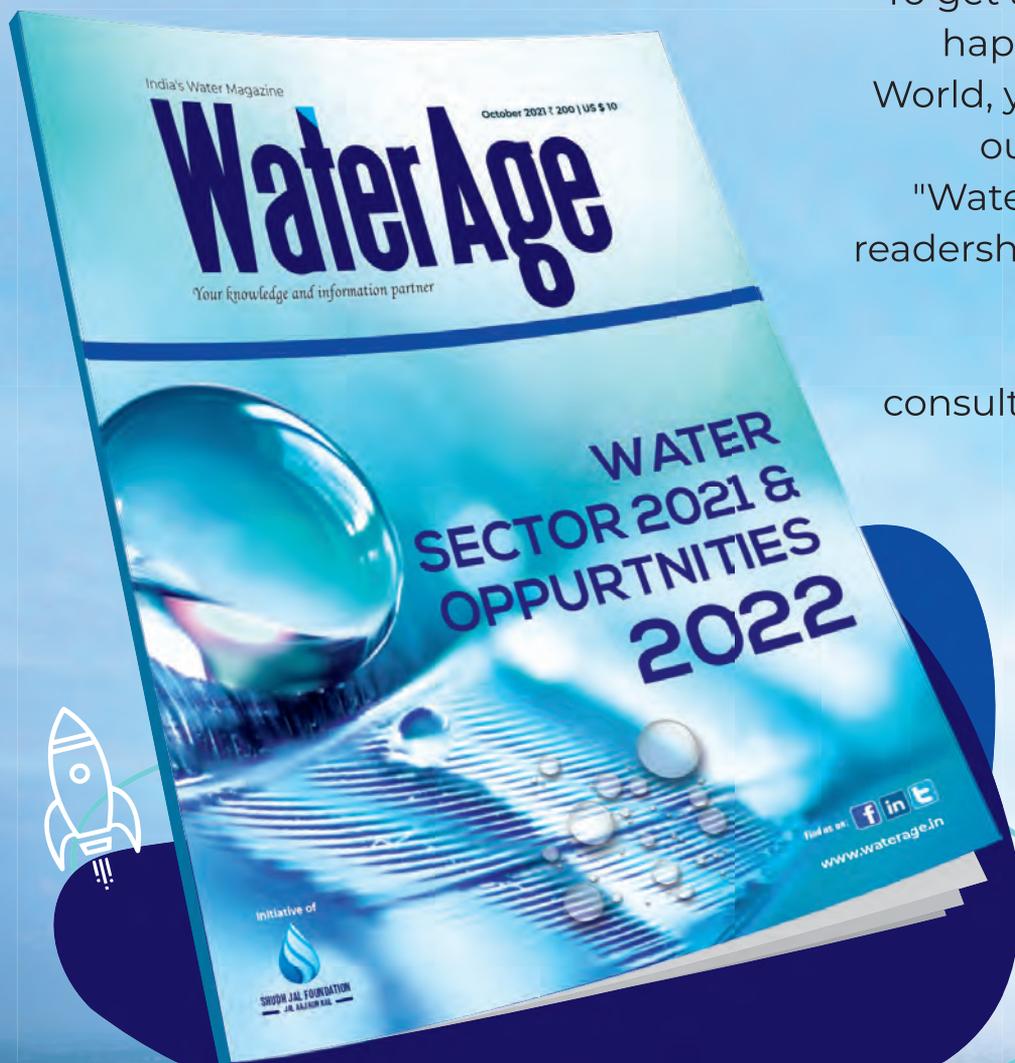
quantity in real-time

- Installation of flowmeters in the pipelines and level meters in the storage tanks
- Calculation of water usage per process and deriving advisories for water reduction
- Daily reports on total water usage and water costs, per process water usage and costs, identification of processes consuming more water than required etc.
- Weekly, monthly and yearly reports on water usage patterns

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Rajul Parikh
Co-Founder, Alfaa UV

Rajul Parikh is the Co-Founder of Alfaa UV – India’s leading manufacturer & exporter of UV water purification systems. She is passionate about people, environment, and water quality. She has experience of 25 years in the water improvement space.

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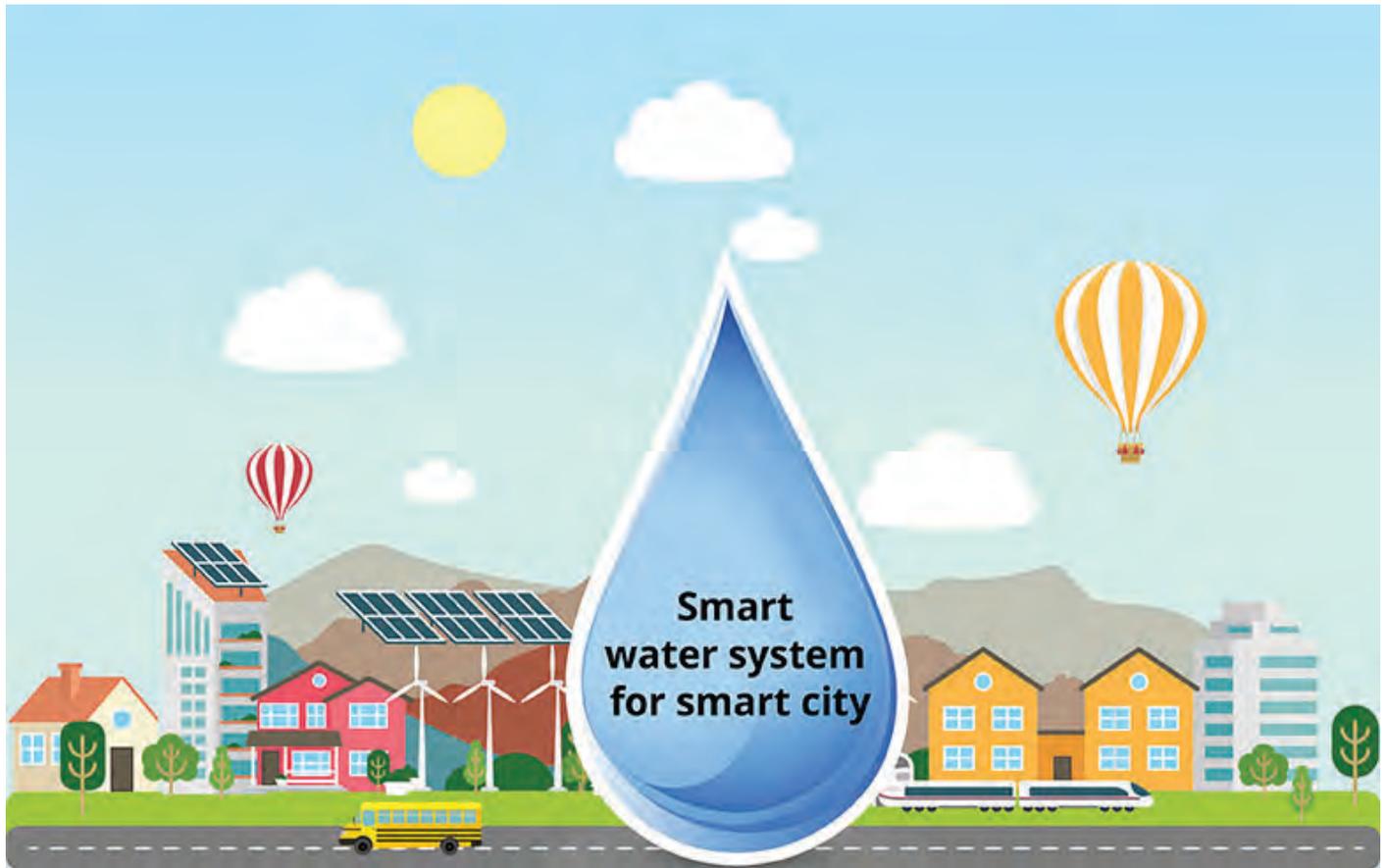
IOT IN WATER AND SMART WATER MANAGEMENT SOLUTIONS

The Internet of Things, or “IoT” for short, is about extending the power of the Internet beyond computers and smart phones to a whole range of other things, processes, and environments. The Internet of Things refers to the billions of physical devices connected to the internet, collecting and sharing data around the world. It is a network of interconnected computing devices, mechanical and digital machines, objects, animals or people with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

IoT is emerging as the third wave in the development of the internet. Internet wave in 1990s had connected one billion users while the mobile wave in 2000s connected another two billion. The IoT has the potential to connect millions of “things” to the internet. This new wave of connectivity is going beyond laptops and smart phones, it is going towards connected cars, smart homes, connected wearables, smart cities and connected healthcare. Basically, it’s about living a connected life. According to Gartner report, by 2025 connected devices across all technologies will reach 1.0 trillion.

| Year | Number of Connected Devices |
|------|-----------------------------|
| 1990 | 0.3 million |
| 1999 | 90.0 million |
| 2010 | 5.0 billion |
| 2013 | 9.0 billion |
| 2025 | 1.0 trillion |

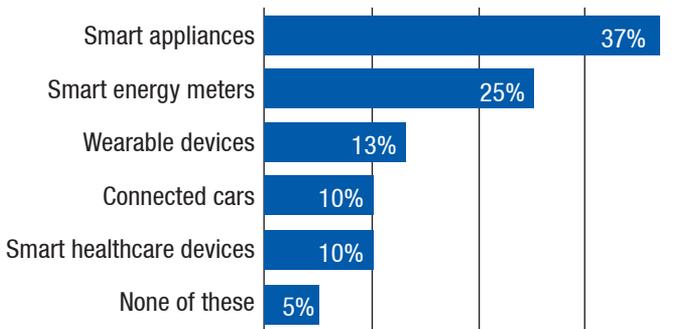
Washing machines, commercial water purifiers, refrigerators, televisions, microwave ovens, and health-care devices will all be connected to the internet in the future thanks to IoT-based technology. The Internet of Things



smart-water-management-diagram

is making the fabric of the world around us smarter and more responsive, merging the digital and physical universes.

A survey conducted by KRC Research in the UK, US, Japan and Germany (the early adopters of IOT) has revealed which devices customers are more likely to use the coming years.



Source: GSMA Report

According to a Cisco report, IoT will generate USD14.4 trillion in value across all industries in the next decade. IoT will bring a wave which nobody can foresee today.

Practical Applications of the IoT

IoT technologies have a wide range of applications, because it is versatile to almost any technology that is capable of providing relevant information about its own operation, the performance of an activity, or even the environmental conditions that we need to monitor and control at a distance.

Wearables like virtual glasses, GPS tracking belts and fitness bands are just a few examples of wearable devices that we've been using for a while. In the medical field, doctors can monitor a patient's condition outside of the hospital and in real time by using wearables or sensors connected to them. Another application is the incorporation of IoT technology into hospital beds, resulting in smart beds with sensors that monitor vital signs, blood pressure, oxygen saturation and body temperature, among other things.

The Internet of Things can help manage vehicular traffic in large cities, which contributes to the concept of smart cities. In logistics and fleet management, Smart sensors connected to an IoT network continuously monitor the container's GPS location, temperature, humidity, shock, and tilt angle. In a central cloud system, the data collected from these sensors are processed and analyzed. The movement of the fleet can be tracked in real time, and customers can be kept informed about the



status of their deliveries.

Internet of Things is not a new phenomenon to connect with people and everyday objects. Machine-to-machine communication has been around for decades; what is new is the way connected things are becoming an integral part of our lives. The Internet of Things (IoT) is gaining popularity due to its significant benefits to human safety, health, and the environment.

IoT Solutions for the Water Purification Industry

The quality of drinking water is one thing that we cannot afford to compromise on. In India, waterborne diseases such as diarrhea, hepatitis, typhoid, and cholera, as well as an illness caused by contaminants such as arsenic or lead, pose significant health risks. Access to safe drinking water is a basic human right – not a privilege. Moreover, water quality in India varies every 200 km. Some regions may have higher arsenic content in water, some may have chloride, and some may contain iron, and so on. The existing water purification methods used in commercial spaces (commercial RO plants) are not as effective as they appear. The primary reason being that there is no way to determine the quality of water in real time. Hidden problems such as choked RO membranes, and bacterial and viral build up often go undetected for an extended period, or till such time that the unit stops working, or there is an outbreak of disease. In both cases, there are breakdowns, delay in repairs, serious health issues and negative PR for the organization. Often this is accompanied by both loss of revenue and reputation.

This data is available both at the back end as well as to the consumer

on any smart device. The consumer is empowered and is in the know of how his purification device is performing across locations.

Ankur Parikh, CEO of Cloudtap – Internet Water says, “To overcome such limitations, there was a crying need in the commercial water purification industry to adopt new technologies and methods of working, many of which are disruptive as compared to traditional methods of water treatment. Cloudtap, a revolutionary RO+UV water purifier, harnesses the power of the internet along with artificial intelligence (AI), to create a digital revolution in the commercial RO segment, the first of its kind in India. Cloudtap not only monitors the purity of water 24x7 and reports purity in real time, but also keeps track of the internal working of the purification plant and reports upcoming faults way before they actually appear, thereby saving time, headaches and expenses. Built into the Cloudtap ecosystem is PRISM Technology which is a proprietary, pathogen removal monitoring system which ensures absolutely safe drinking water.”

CLOUDTAP – Internet Water: The Future of Water Purification

The commercial segment in India covering retail, hospitality, food service, entertainment, corporate, and educational institutions has been growing at a rapid pace and is expected to grow exponentially in the coming decade. The need for water purification is at an all-time high and is expected to keep pace with this growth. Users will look for more advanced options in water purification with more reliability and ease of use. The digital revolution which has boomed thanks to the pandemic is here to stay, making way for smarter options in every space. IoT is now a part of our everyday life. And water is no exception.



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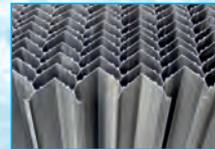
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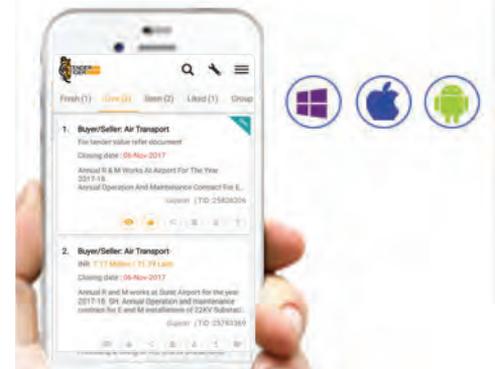
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SUPPORTING INDIA IN FIGHTING WATER CRISIS



Kobayashi Hiroaki

Chairperson & Managing Director,
Toshiba Water Solutions Pvt. Ltd.

“Clean water and sanitation facilities protect people from disease and are crucial for a sustainable economic growth. We are actively using our technologies to ensure environment sustainability and we will be happy to further utilize our strengths in providing water and wastewater treatment solutions and support the Indian government’s aims to address the water crisis.”

The world is facing a scarcity of portable water. According to UNICEF, 1 in 3 people around the world lack safe drinking water, and over half of the global population lacks safe sanitation. In India, demand for water is projected at twice the available supply by 2030, pointing toward severe water scarcity, made more acute by rapid urbanization that has led to increased water pollution.

The Government of India has announced several initiatives to address the ballooning water crisis and Toshiba, with its unwavering drive to make and do things that lead to a better world, is supporting

the government in building resilient water and wastewater treatment infrastructure to address water scarcity and water pollution problems. Toshiba stands committed to provide solutions that support clean water supply and improve the water environment.

Toshiba is an industry expert and India’s long-term partner in building sustainable water and wastewater infrastructure. Toshiba has headquartered its subsidiary, Toshiba Water Solutions (TWS), herein India as a core company for Toshiba’s water and wastewater treatment business. Since its establishment, TWS has



executed over 450 engineering, procurement & construction (EPC), and Operation & Maintenance (O&M) projects in 35 countries.

In India, under the Indian government's "Clean Ganga" initiative, TWS is involved in projects in three states which are Uttar Pradesh, Bihar, and Jharkhand, for the construction of ten sewage treatment plants (STPs) with the combined capacity of 181 MLD. Earlier in June-2021, recognizing Toshiba's efforts in developing 'Quality Infrastructure' in India, TWS's Salori STP project in Uttar Pradesh was bestowed with the Japan Construction International Award by the

Ministry of Land, Infrastructure, Transport and Tourism (MLIT) of Japan.

In past also, TWS has constructed multiple STPs in Ganga & Yamuna basin, including 182 MLD STP with power generation at Nilothi for Delhi Jal Board and 74 MLD STP on Sequencing Batch Reactor (SBR) technology at Ghaziabad for Uttar Pradesh Jal Nigam.

Even during the testing times of the COVID-19 pandemic, TWS, in partnership with SUEZ India Pvt. Ltd., received an order from Bangalore Water Supply and Sewerage Board. The project



covers the design, construction, and commissioning of a 775MLD water treatment plant at T.K. Halli, Karnataka. This project is part of Phase 3 of the Bengaluru Water Supply and Sewerage Project which is funded by the Japan International Cooperation Agency (JICA).

With environmental authorities taking cognizance of industrial water pollution as a serious issue, industries are inclined to adopt a zero liquid discharge (ZLD) system to support Environmental Sustainability.

TWS has a track record of more than 35 years and has many complex prestigious projects to its credit. TWS has commissioned true ZLDs and achieved more than 95% recovery rate. Some of the project highlights are 212 cum/day at Sricity in Andhara Pradesh, 1800 cum/day at Bawal in Haryana, 10,000 cum/day (Phase-1 &2 each) in Oman, 8,000 cum/day, 5500 cum/day, and 4400 cum/day ETPs for a ZLD facility for textile effluent at Tirupur.

Toshiba is harnessing its knowledge and expertise to offer a multitude of water and wastewater management solutions, and looks forward to working together with more partners in “India FOR A NEW DAY”.

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LEADING TEXTILE MANUFACTURER CUTS DOWN OPEX BY 85% IN THE 5th STAGE RO OF ZLD PROCESS



About Organization

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Pump Specifications

- **Flow:** Upto 30m³/hr
- **Pressure:** 80 bar
- **Pump model:** BMS 17–22HS, 85 kW and BM 17–40R, 22 kW

The Situation

The textile industry in India uses 1,608 MLD (million liters per day) of water every day for its industrial processes. Due to India's regulation on the use of water, many textile companies have begun to embrace global best practices such as Zero Liquid Discharge (ZLD) to reuse their process water and reduce water footprint. However, the ZLD process has higher OPEX due to the process of 'Mechanical Vapor Recompression Evaporation' (MVRE) which has a high energy requirement.

This MVRE process is critical to increase the water concentration before the final salt recovery after the fourth stage of the Reverse Osmosis (RO) in ZLD. A leading textile company in the southern part of India was looking out for 5th stage RO as an alternative for MVRE to reduce the overall OPEX in ZLD process.

The Solution

To reduce the energy footprint of the ZLD plant, the customer replaced a less efficient MVRE



process with a more robust 5th stage RO in their plant, which requires high–pressure pumps and membranes with operating pressures up to 80 bar.

Grundfos new BMS HS pumps are the perfect fit for this high–pressure application in the 5th stage RO process. This BMS HS solution can manage pressure up to 82.7 bar efficiently and with the use of permanent magnet motor technology, the entire solution is compact, efficient and needs less footprint.

Grundfos offered BMS HS and BM pumps with MPC controller to ensure automatic operation with safety interlocks, eliminating the need for any manual interventions.

The Outcome

Grundfos solution significantly cut down the OPEX of the 5th stage RO of the ZLD plant by up to 85%. Grundfos’ reliable BM and BMS pumps ensured uninterrupted operations in the fifth stage of the RO process for the ZLD plant.

Grundfos MPC controller and variable–frequency drive connected with a communication module ensures that the pressure, flow, and speed are optimally managed for varying process requirements.

Further, this MPC controller enables automatic operations and ensures that the safety precautions for pumps are in place while delivering process requirements seamlessly.

Benefits of Grundfos BMS & BM Range of Boosters with MPC Controllers

Maximum Efficiency

- A permanent magnet motor is the secret behind the improved efficiency of the BMS high–speed range. This high speed motor in BMS HS range also offers a smaller footprint and drastically reduces the weight of the pump.

High Durability

- All wetted components are made of super duplex stainless steel resulting in high durability. The Grundfos BMS HS range has been put through rigorous tests, to ensure maximum process reliability.

Package Solutions

- Grundfos MPC controllers with BM & BMS HS pumps offered as a package solution to this 5th stage RO process ensures complete process automation and safety.

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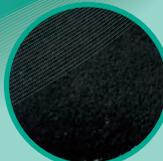
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Dr. Mohit Sharma is employed with National Mission for Clean Ganga, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti as Communication Specialist. Dr. Mohit academically specializes in federal studies and holds a Ph.D. in International Studies from Jamia Millia Islamia. He also holds over 12 years of experience in journalism during which he worked for reputed national newspapers. From the past 5 years, he has been writing on water-related issues and has been a part of several campaigns being run for Ganga Rejuvenation and Jal Shakti Abhiyan. He is on the Editorial Boards of monthly magazines of Department of Water Resources, River Development and Ganga Rejuvenation (Jal Charcha) and National Mission for Clean Ganga, Ministry of Jal Shakti (Namami Gange).

www.nmcg.nic.in [in dr-mohit-sharma-b60a5363/](https://www.linkedin.com/in/dr-mohit-sharma-b60a5363/)

NAMAMI GANGE: A PEOPLE'S MOVEMENT

River Ganga sustains 43 per cent of India's population. It traverses a territory of 2,525 kilometres spanning five main stem Ganga basin States – Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal. It is the largest river basin in India that extends over 11 States. The river constitutes 26% of the country's landmass. It is the substratum of our civilization – the mere mention of its name evokes awe and reverence. Since times immemorial, Ganga has been the lifeline of the country and revered as a deity, considered as Mokshdayani – the One who removes all sins.

Yet a load of rapid urbanisation and industrialisation, indeed, adversely affected the river's health. The unchecked discharge of municipal sewage and industrial effluents, reduced flow, open defecation and inadequate solid waste management constitute some of the factors responsible for the river's troubles. It is to the credit of Prime Minister Shri Narendra Modi's vision that through Namami Gange Programme, many of the foregoing perils are being taken care of. The positive results of the Namami Gange Programme have begun to manifest in the form of improved water quality and thriving biodiversity. The Namami Gange mission stands on four pillars – Nirmal Ganga – bringing about cleanliness in the river waters, Aviral Ganga – improving ecology and flow, Gyan Ganga – facilitating research and studies and Jan Ganga – strengthening people–river connect. In the following lines, I would like to emphasize the last pillar and the efforts made in the direction of enhancing public participation in the Namami Gange Programme.

Reminiscent of Swachh Bharat Abhiyan, transforming the Clean Ganga Movement into a Jan Andolan has been the clarion call of our Prime Minister. Thus, the restoration of the people–river connect, which once defined the unique relationship between Ganga and the people of India is one of the most important components of the Namami Gange Programme, launched in 2015. It is a comprehensive and integrated river rejuvenation program, not limited,



for the first time, to just pollution abatement but also focuses on the restoration of ecology around the entire Ganga basin and communicating to the people about the social, religious as well as economic relevance of the River, the central message of Namami Gange Programme.

This is being done by organising community-driven events regularly. Some of the annual events that have successfully connected crores of people to the Clean Ganga Movement are Ganga Swachhta Pakhwada, Ganga Utsav, Ganga Run, Afforestation Drives and Ganga Quest. The activity-based events like Ganga Swachhta Pakhwada get their strength from people from all walks of life who voluntarily offer Shram Daan to clean the ghats and banks of River Ganga and its tributaries. Ganga Swachhta Rally, Ganga Pledge, Painting and Debate Competitions, Ganga Arti, Signature Campaigns, Nukkad Nataks are some of the ways through which the message of Namami Gange is put across. Pertinently, the events keep the participation of children and students at the helm of their activities. Another annual affair – Ganga Utsav – celebrated on and around November 4th (India was declared the National River on November 4th, 2008) has become synonym with festivities featuring

games, talk shows, puppets, Chaupals and movies on Ganga. Celebrities are roped-in to attract more and more people. To maximize the participation of people living on the banks of Ganga, Ganga Aamantran Abhiyan, the month-long rafting expedition on the entire length of the river was organised in 2019 to spread the message of water conservation in general and river rejuvenation in particular.

Apart from the cultural significance of Ganga, its economic, environmental and social significance need to be spelt out, especially to the younger generation of the country who are the future of our country. Arth Ganga is emerging as a powerful economic driver vis-a-vis River Ganga. Keeping this prerequisite in mind to make Namami Gange a mass movement, a slew of collaborations and activities are being conducted for proper engagement of youth in the Clean Ganga Project including Nehru Yuva Kendra Sangathan (Ganga Doots), Ganga Mitras and Ganga Praharis. The moot idea behind the development of these trained cadres is to create a pool of young volunteers from various quarters, who can dedicatedly work for the cause of Ganga Rejuvenation and become messengers of Ganga. While Ganga Doots are a set of a dedicated cadre of 20,000



young men and women spanning 2336 villages in 29 districts of five main stem Ganga basin States, Ganga Mitras are being imparted training by Mahamana Malviya Research Centre for Ganga, River Development and Water Resource Management, Banaras Hindu University, Varanasi. Already, a Task Force of 400 Ganga Mitras has received specialized training. They have further nominated more than 10, 000 people as 'Jal Sanrakshak' to broaden the chain of Ganga volunteers. Ganga Praharis, on the other hand, is a cadre of motivated and trained volunteers from communities residing along River Ganga. The project aims to prepare a science-based aquatic species restoration plan for the Ganga River by involving multiple stakeholders.

Ganga Quest, an online international quiz, is another first-of-its-kind initiative that has had a phenomenal impact in reaching out to students, teachers and other stakeholders on a global scale. More than two million people from across all the Indian States and Union Territories took part in the Ganga Quest 2020 and 2021. Lakhs of schools participated in the Quiz. The Ganga Quest also saw international participation from several countries. This initiative is important as inculcating awareness on Ganga at the tender age will go a long way in creating a 'Ganga Consciousness'. The international community is also being reached out through Indian Embassies and High Commissions for their support in whichever way they can.

Last but not the least, the role of social media platforms in taking

Ganga Rejuvenation to millions of people across the globe has been monumental. Aggressive social media campaigns have become the backbone of building meaningful connections, capturing the imagination of the target audience through high-quality content that resonates with people. Social media platforms are used to form long-term relationships with the millennials.

History is replete with lessons of how people's movements brought about revolutionary changes in society and once the public at large owns up the cause, lasting and effective solutions emerge out of such partnerships. Without public ownership, herculean public programmes like Namami Gange cannot be a success. After Swachh Bharat Abhiyan, Namami Gange is one of the biggest programmes to bring about behavioural change among people to keep their surroundings as well as their rivers and ecology clean, green and healthy, for their own benefit.

The solution to any problem related to pollution in Ganga or any other river of the country lies only in the participatory management of the resource. It is a matter of deep satisfaction that the public can be seen more aware of their duty to keep Ganga clean as evident from various activities being undertaken every day, despite the threat of the Covid-19 pandemic, in the high mountains of Uttarakhand up to Ganga Sagar where the river finally meets the Sea. These activities may be small in nature, but these small steps are transforming the Namami Gange Programme into a Jan Andolan'.



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Chairman, SPML Infra Limited

About the Spokesperson

Subhash Sethi is the Chairman of leading water company – SPML Infra Limited. He has been instrumental in developing India's water sector with EPC and BOOT projects to help water utilities deliver safe and clean drinking water to millions of people in India. For his valuable contribution in water and infrastructure sector, he has been conferred with several prestigious awards including Economic Times Global Asian Business Leader.

www.spml.co.in

There is a growing recognition about the need to make water management a mass movement in the country. Government of India is publicly talking about it and has taken the initiative under the Jal Jeevan Mission Scheme. It is clear that the holistic and sustainable benefits of efficient water management with proper infrastructure support do offer an opportunity.

But there is also the challenges involved of how to enable a transition from government owned—government run system to public owned—public run system. We know that so far, Jal Jeevan Mission has been able to connect millions of rural households with tap water connection and there are still several million more households to be connected in the country.





200 MLD Water Treatment Plant, Surajpura, Rajasthan

2021 was a roller-coaster year and we all have experienced the impact of the pandemic in terms of physical and emotional well-being, economic upheavals, and disruptions in construction activities along with other disparities. It has prompted individuals, businesses and governments to be agile and resilient to adopt a new normal while saving resources for sustainability. Water being a State subject, steps for augmentation, conservation and efficient management of water resources are primarily undertaken by the respective State Governments. Government of India in partnership with all Indian states is implementing the ambitious Jal Jeevan Mission (JJM) to provide Har Ghar Jal.

The program that envisage providing clean potable water in adequate quantity of prescribed quality on long-term basis to every rural households including tribal areas of the country through functional tap water connection by 2024. The mission has been progressing well and it has achieved the task of connecting over 56.61 million rural households with drinking water supply in less than two and half years' time since its launch in August 2019.

This Union Budget 2022-23 presented today by the Hon'ble Finance Minister of India has echoed the sentiments to boost the economy

while providing motivation to infrastructure sector including drinking water supply, irrigation, river-interlinking, groundwater development, waterways, renewable energy, smart cities, wastewater management & sanitation, airport, roads & railways sectors among others.

The outlay of INR 60,000 Crore for Jal Jeevan Mission to cover 38 million more households in 2022-23 is a welcome move as it will help to expand the network of rural tap water connections making clean drinking water available to millions of more people than what we have currently.

At SPML Infra Limited, we are happy with the allocation as we are already a part of the Jal Jeevan Mission scheme and developed a number of projects in different states that has been able to provide safe water to people. I am happy that the commitment of our Hon'ble Prime Minister of providing "Har Ghar Jal" is progressing well.

In fact only the last month, he has inaugurated a project completed by SPML Infra Limited under the Jal Jeevan Mission in Manipur.

India is moving forward with a conviction to resolve the water issues and to streamline water distribution system in several regions, the fund



160 MLD Water Treatment Plant, Dhannaser, Rajasthan

of INR 44,605 Crore has been allocated for the Ken–Betwa river linking project. As the Finance Minister described, it will help to provide drinking water facilities to 62 lakh people as well as providing better irrigation to 9 lakh hectares of land while supporting the generation of 103 MW of hydro power and 27 MW of solar power. At SPML Infra, we know that the project will bring a big difference in people's lives and agriculture yields as we have been part of the progress of such a large project in Gujarat called as Saurashtra–Narmada Avataran Irrigation Yojana (Sauni Yojana), which is quite successful in its target.

The allocation under Swachh Bharat Mission (Rural) of INR 9,994 Crore and INR 2,300 Crore for Urban, AMRUT Scheme with INR 7,300 Crore,

National Mission for Clean Ganga for INR 600 crore, Major & Minor Irrigation Projects of INR 4,904 crore along with other urban infrastructure development projects will certainly be a game changer in the water sector in India. The linking of five rivers including Damanganga–Pinja, Krishna–Godavri, Krishna–Pennar, Pennar–Cauvery, Par Tapi– Narmada is going to have a long term impact on water sustainability initiatives in the proposed regions.

I feel that the measures announced with matching grants for the water, wastewater and other infrastructure development along with other plans will prove to be beneficial for the country and it will sure help in the long run towards creating a USD 5 trillion economy in the future.



11 MLD Decentralised Sewage Treatment Plant at Mira Bhayander



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WATER FOR THE DEVELOPMENT OF NATION



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

About the Spokesperson

Mohammed Naser Azeez is the Managing Director of acclaimed Aquality Water Solutions Pvt. Ltd. that provides technologically advanced systems for water and wastewater treatment including solar powered treatment facilities. With ardent interest in providing clean drinking water facilities, he contributed immensely that has helped in improving quality of life of citizens with commitment, technological innovations and quality excellence.

www.aqualitywater.com

Among all natural resources, water is considered the most vital. In India from being infinite and renewable, it has become a finite and vulnerable natural resource. Water resources are under serious threat across the globe and India is also facing grave water challenges. Availability of safe drinking water, inefficient water use practices, and inadequate wastewater treatment are some of the greatest issues India is facing currently. The groundwater withdrawal rate as compared to available supplies is extremely high due to better economic activities coupled with rapid urbanization and population growth. The combined effect of increasing population and expanding cities will see the demand for freshwater supply rising exponentially.

The issue is more severe in several regions as they are facing acute drinking water scarcity due to recurrent droughts, low rainfall, and skewed distribution pattern. Freshwater availability is an issue in almost one-third of India's population where people have been facing water availability issues or quality problems frequently. India's water demand will exceed supply by two times in the coming 6–8 years indicating severe water scarcity in the country. It is already facing a water shortage beyond expectations as over 600 million people in the country have less than average water available for them.

The normal all-India per capita water availability is expected to be reduced to 1,341 cubic meters by 2025 and touch a low of 1,191 cubic meters by 2050. This shortage of water for industrial and residential use is expected to increase the demand for water treatment systems in the long run. In response to the rising concern, there is an urgent

<https://bit.ly/MohammedNaser>



40 KLD Water Treatment Plant in Hyderabad

need to develop adequate and quality water infrastructure; to meet both domestic and industrial water demands in the country. The rapidly shrinking freshwater resources and growing wastewater complexities will drive the demand for water and wastewater treatment equipment and technologies in India.

Budget 2022–23 for Water

The Union Budget 2022–23 has echoed the concern when the Finance Minister has announced huge fund allocation for rural water supply schemes along with irrigation and river interlinking projects. The awareness of India becoming a water-scarce country is frightening and the Government has taken suitable steps in addressing the challenge. The Jal Jeevan Mission is an ambitious scheme that envisages providing safe piped drinking water to all rural households thus eliminating the water contamination issues for the rural population who more often suffers from diseases borne out of contaminated water. The scheme will certainly make life better for over a billion people in the country.

The INR 60,000 crore allocation towards providing tap water connection to 3.8 crore additional rural households in 2022–23 period will see large scale development of water infrastructure facilities. At Aquality Water Solutions, we are very hopeful that robust water and wastewater treatment facilities will be created providing indigenous manufacturers and distributors of water treatment systems a good chance to become a part of this development. I feel that at most places in our rural areas, a regular electricity supply is still an issue and it should be better if we plan to have a compact and hybrid water treatment plant installed that will work even without direct electricity supply having been used the solar panels to generate and store electricity in the system. This type of water treatment system will be very appropriate for India's rural habitations.

The announcement and huge fund allocation under different schemes for water supply, irrigation, wastewater management, sanitation, and river interlinking projects are expected to benefit the water sector, specifically



4000 LPD 6 stage Drinking water plant for Amazon Campus, Hyderabad



Commercial Water Treatment Plant by Aquality Water Solutions



Solar Power Portable Water Treatment System

the Water Treatment Equipment and Pipe Manufacturers. Companies operating in these segments can get a major boost as the projects under various government schemes will be implemented this year to create sustainable water infrastructure.

Challenges & Prospects

Water pollution, in general, and degradation of groundwater quality, in

particular, are the added dimensions of the water scarcity issue. Thus, the water problem involves quantitative shortages, as well as, qualitative deterioration. The challenges being faced in providing access to adequate and safe drinking water to the population includes fast declining resources and higher demands. The complexity further rises from the multifaceted aspects of water management, beginning with technical, institutional, and organizational issues, application of new technologies, legal and regulatory concerns, and operational effectiveness. Water sustainability has become inseparable from sanitation facilities needed for the treatment of growing wastewater accumulation prior to its discharge back into the environment. In fact, there lies an opportunity to reclaim the huge quantity of wastewater back into the supply system, beginning with non-potable usage.

Water is a critical resource that needed firm handling as it can enhance India's economic growth, improve the quality of life of its people and ensure environmental sustainability. With the government planning to invest over 6.3 trillion rupees into water infrastructure development both in rural and urban areas, the prospects of the water sector in India are quite positive. We also have to consider an integrated approach to water infrastructure development and management with reliability and financial sustainability.



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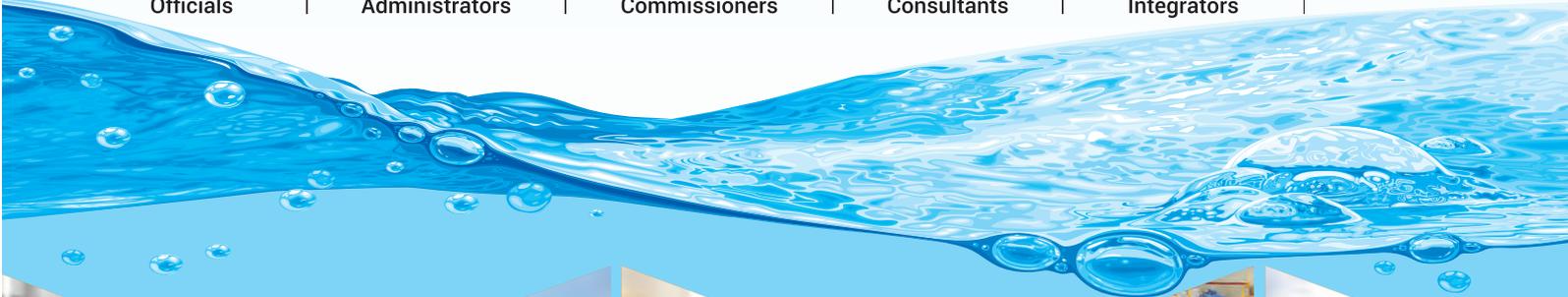


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UNION BUDGET 2022-23

FOCUS ON WATER: BUDGET 2022 & BEYOND



Mohammed Abdul Rahman
CEO, Sahara Industry

About the Spokesperson

Mohammed Abdul Rahman is the CEO of Sahara Industry formed in 2003 with the sole purpose of providing best quality water treatment solutions to industries. An MBA in marketing & finance, he has 15 years of rich experience in handling various business activities and has been instrumental in taking his company towards success. His modern business approach supported by the technological intervention and his dynamic leadership qualities has made his group companies turnover exceeding INR 1000 million.

www.saharaindustry.com

India is home to 1402 million people, almost 17.7 percent of the world's population, but only has less than 4 percent of the world's water resources. This inherent lack of sufficient water resources is reinforced by a rapidly growing demand for water which is projected to overtake the availability of water throughout the entire country within this decade. Urbanization, increasing population, rapid industrialization, and increased economic activities have made the demand for water strong and it has become a challenging task to meet the expectation rising exponentially every year. Moreover, depletion of groundwater levels due to rising irrigation demand in major river basins is expected to become a reality very soon.

Until a few years ago, we were not talking about water the way we do it now. The water scenario has changed drastically in the last decade from abundance to scarcity. The liberalization process brought about the growth of our economy, our population, our prosperity; but also led to extracting more natural resources from the planet including a higher level of water extraction and use while also creating more pollution with these resources. The surface water availability per capita in India in 1991 was 2309 cubic meters which have been reduced to 1486 cubic meters by 2021. About 36% reduced in three decades and estimated to reduce further to only 1191 cubic meters in next less than three decades.

The government of India being aware of the situation has formulated the National Perspective Plan (NPP) for Water Resources Development which envisages the transfer of

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water from water surplus basins to water-deficit basins to improve the availability of water in the scarce regions. It also formulated guidelines for the States to adopt suitable measures to local conditions to promote recharge of groundwater with a focus on rainwater harvesting and water conservation measures.

The increasing water demand and falling per capita availability, water use and energy efficiency, deterioration of water quality, declining of available resources, loss of surface storage facilities, increasing conflict for water, inefficient use in irrigation, overexploitation, and depletion of groundwater resources, increasing water pollution and soil salinity in irrigated lands, lack of management of resources, aging and dilapidated water infrastructure in the country, untreated wastewater accumulation, ignorance of used water resources potential, significant change in usage pattern combined with urbanization and industrial growth has taken a big toll on the water sector in the country.

Budget 2022-23: Water in Focus

The Union Budget for the year 2022-23 is presented today and I am happy that the Honorable Finance Minister has allocated good resources towards water infrastructure development in the country. INR 60,000 crore budget for providing clean drinking water to 3.8 crore additional rural households in 2022-23 under the flagship scheme of Jal Jeevan Mission will bring a change in the lives of people. We at Sahara Industry are very hopeful that the issue of drinking contaminated and polluted water will be resolved with proper water treatment facilities being installed at all village and gram panchayat levels as well as in the individual households. The budget allocation under Swachh Bharat Mission, Clean Ganga, AMRUT Scheme, and River Interlinking



3672 FRP Pressure Vessel for Industrial RO Water Purification System installed in Le-Meridien



Ultra-Pure Water Treatment Plant



Industrial Water Treatment Plant



FRP Pressure Vessels



Fully Automatic Water Softener

projects will help in developing robust water and wastewater treatment and management facilities at various levels.

The allocations towards Water Supply, Irrigation, Sanitation, and Rural Infrastructure development will translate into enhanced economic activities in the rural heartland. It will also help India in attending to the water crisis situation and making clean drinking water available to people in the country.

Way Forward

With the emphasis of the government on expanding the network of water supply

infrastructure in urban and rural India through the Jal Jeevan Mission, ensure safe tap water to children in schools, groundwater irrigation under the PMKSY that aims to provide financial assistance to states for assured groundwater irrigation to small and marginal farmers for better agriculture produce, national hydrology project, rainwater harvesting under the master plan for artificial recharge of groundwater, Atal Bhujal Yojana for sustainable management of groundwater, creating smart cities will be proven effective over the decades.

Going forward; there will be a greater need for implementing intelligent and smart technology,

particularly for water treatment, demand-supply management, pumping solutions, water loss management, metering, and real-time water monitoring. India's total water market is estimated to be worth more than USD 12 billion, and growing at the rate of 10 – 12 percent, making it amongst the largest water markets in the world. Since the government has shown an increased commitment to improving the water and sanitation sector in the country by opening up for foreign investment and privatization, we hope that international best practices, technology, and know-how will help India develop its water supply and water treatment systems in a more sustainable manner.



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Tender Number :
W.W./05/FEB/2022

Requirement: Construction of Intake Well, Approach Channel, Pump House and Rising Main From Gaurishankar Lake (bortalav) to Chitra Water Treatment Plant for Carrying Water From Gaurishankar Lake (bortalav) to Chitra Water Treatment.

Document Fees: INR 12,000

EMD: INR 522,260

Tender Estimated Cost: INR 52,226,000

Closing Date: 16/03/2022

Location: Bhavnagar – Gujarat – India

Tender No.:
2022_KMC_364474_1

Requirement: Operation and maintenance of 20 mgd capacity water treatment plant at igwtp

EMD: INR 1,000,000

Closing Date: 15/03/2022

Document Sale To: 15/03/2022

Location: Kolkata – West Bengal – India

Buyer/Seller: Tata Institute Of Fundamental Research

Ref. Number: 47840414

Tender No.:
ICTS/TIFR/2021–22/SER–35

Requirement: Operation and maintenance of sewage treatment plant at ICTS–TIFR.

Tender Estimated Cost: INR 2,100,000

Closing Date: 18/03/2022

Location: Bangalore – Karnataka – India

Tender No.:
TE–12011/3/2021

Requirement: Selection of project engineer for the upgradation of 2.15 mld to 2.65 mld common effluent treatment plant (cetp) for tanneries with soak stream treatment, common chrome recovery system, composite stream treatment on zld technology at unnao, uttar pradesh.

Tender Estimated Cost: INR 890,500,000

Closing Date: 28/02/2022

Location: Unnao – Uttar Pradesh – India

Tender No.:
2022_JDAJP_255381_1

Requirement: Engineering procuring construction commissioning epc and performance run followed by ten years o and

m of sewerage treatment plant of 43 mld capacity at village sanjhariya of city based on sequential batch reactor sbr technology.

Tender Detail: Engineering procuring construction commissioning epc and performance run followed by ten years o and m of sewerage treatment plant of 43 mld capacity at village sanjhariya of jaipur city based on sequential batch reactor sbr technology.

Document Fees: Rs. 5,000

EMD: Rs. 20,800,000

Tender Estimated Cost: Rs. 1,040,000,000

Closing Date: 28/02/2022

Document Sale To: 23/02/2022

Location: Jaipur – Rajasthan – India

Tender No.: 506772

Requirement: Design, supply, construction, installation, testing and commissioning of sewage treatment plant (33.10 mld) based on open technology with biological nutrient removal (bnr) with mcc panel room, dg set and all civil, electrical, mechanical, piping and instrumentation works with three months trial run and post completion operation & maintenance of entire system for 5 [five] years including 3 [three] years defect liability period at district gandhinagar, gujarat.

Document Fees: INR 28,320

EMD: INR 4,664,230

Tender Estimated Cost: INR 466,422,818

Closing Date: 09/03/2022

Document Sale To: 09/03/2022

Location: Kalol – Gujarat – India

Tender No.:
2022_MES_499141_1

Requirement: Provision sewage treatment plant of capacity 3.8 mld at aoc centre.

Document Fees: 3,000

EMD: 1,500,000

Tender Estimated Cost: 235,700,000

Closing Date: 10/03/2022

Document Sale To: 07/02/2022

Location: Secunderabad – Telangana – India

Tender No.: 2022_NCL_233037_1

Requirement: Modification of /upgradation of existing system of etp of khadia project on turnkey basis.

EMD: INR 979,700

Tender Estimated Cost: INR 78,372,000

Closing Date: 14/03/2022

Document Sale To: 14/03/2022

Location: Singrauli – Madhya Pradesh – India

Tender No.: 2022–Feb–01–01

Requirement: Supply, installation & commissioning, operation of etp/wwtp/stp for waste/sewerage water recycling at agra fort station & maintenance for two year

Tender Detail: Supply, Installation & Commissioning, Operation of Etp/w.....

EMD: INR 194,100

Tender Estimated Cost: INR 9,704,676

Closing Date: 09/03/2022

Location: Agra – Uttar Pradesh – India

Tender No.: 20/BMC/
SEWERAGE/2021–22

Requirement: Providing consultancy services for preparation of DPR to meet NGT norms for reuse of treated waste water of bilaspur city by NTPC power plant at sipat near bilaspur. Selection of project management consultant (PMC) for balance work of under ground sewerage system.

Tender Estimated Cost: INR 6,875,000

Closing Date: 08/03/2022

Location: Bilaspur – Chhattisgarh – India

Tender No.: 92912

Requirement: Providing consultancy services for preparation of dpr to meet ngt norms for reuse of treated waste water of bilaspur city by ntpc power plant at sipat near

EMD: INR 25,000

Tender Estimated Cost: INR 2,132,000

Closing Date: 08/03/2022

Location: Bilaspur – Chhattisgarh – India

Tender No.: 2218C00121

Requirement: Restoration of waste water neutralization tank vv–922 a/b rcc wall internal & outer surface along with floor and slab at hdpe plant.

Closing Date: 03/03/2022

Location: Dahej – Gujarat – India

Buyer/Seller: University

Requirement: Development of inorganic ferrite/conducting polymer–based composites for photo assisted decontamination of wastewaters.

Closing Date: 21/02/2022

Location: Multi Location – Multi State – India

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28–31 March, 2022
Denver, Colorado, USA
www.awwa.org/Events-Education/Sustainable-Water-Management

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29–31 MARCH, 2022
Miami Beach, Florida, USA
www.filtxpo.com

Water India – Water Expo Pune

14–16 April, 2022
Deccan College Ground, Yerwada, Pune
www.waterindia.net

World Environment Conference (WEC 22)

04–05 June, 2022
Pragati Maidan, New Delhi, India
www.worldenvironment.in

Aquatech China

8–10 June, 2022
National Exhibition and Convention Center, Shanghai, China
www.aquatechtrade.com

Water India Bangalore

9–11 June, 2022
Manpho Convention Centre, Nagware Ring Road, Bangalore, India
www.waterindia.net

Indian Plumbing and Watertech Expo (IPW India)

7–8 July, 2022
Delhi, India
www.ipwindia.in

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4–6 August, 2022
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Paijanindia, Colombo, Sri Lanka

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21–23 August, 2022
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www.worldwatersummit.in

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Pragati Maidan, New Delhi, India
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www.renewableenergyindiaexpo.com

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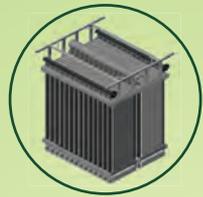
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- ▶ Specification of mechanical and electrical equipment of sewage network STP & ETP.
- ▶ Preparation of drawing.
- ▶ Preparation of bill of quantities, detailed estimates BOQ and estimate based on MES SSR – 2020 and market analysis for Non-SSR items for sewage network STP & ETP.

FIELD OF EXPERTISE



ENGINEERING EXCELLENCE



RYSA INFRATECH PVT. LTD. (RIPL) is a fast-growing EPC company established in the year 2015. RIPL is an enlisted contractor with Military Engineer Services (MES) for:

- Pre-Engineered Building & Infrastructure
- Water & Wastewater Treatment Projects
- Sewage Disposal and Water Distribution Network
- Electro-mechanical utility services
- Low Tension Electric Works
- Incinerators



SEWAGE TREATMENT PLANTS



LOW TENSION ELECTRIC WORK



WATER TREATMENT PLANTS



WATER DISTRIBUTION

COMPLETED PROJECTS



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