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IN THIS EDITION

REGULARS

- 04 Editorial Stream**
- 06 National Water News**
- 18 Global Water News**
- 25 Subscription Card- EverythingAboutWater**
- 82 The Ozone Page – Column**

IN CONVERSATION WITH

- 32 Anil Sethi**
Chairman, Pump Academy Private Limited
- 36 Jitender Thirwani**
Chief Operating Officer, Smarterhomes Technologies Pvt. Ltd.
- 40 Julius Gloeckner ; Kay Gunther Gabriel**
Chief Growth Officer, CERAFILTEC ; Chief Technology Officer, CERAFILTEC
- 44 Vikas Brahmavar**
Co-founder, Boson Whitewater.
- 48 Sanjay Bahl**
Chief Executive Officer, SUPER WELD
- 50 Rajul Parikh**
Co-Founder of Alfaa UV
- 52 Abdul Rahman Mohammed**
CEO, Sahara Industry
- 56 Mohammed Naser Azeez**
MD, Aquality Intelligent Solutions Pvt. Ltd.
- 60 Dipak Dahake**
Director, Aquaindica Techno Solutions Private Limited
- 62 Ashutosh Vadanagekar**
Technical Director, Amalgam
- 64 CIMCON Software (India) Pvt. Ltd.**
Global Leadership Through Technology Innovation
- 68 S K Sarkar**
TERI, New Delhi and a former Secretary, Ministry of Water Resources
- 70 Abdul A. Khurram**
Director Technical, Water Care Services (WCSP)

- 72 Ran Kedem**
Partner at Reali Technologies Ltd
- 76 TheogeneRUSATIRA**
WASH EXPERT, Movement for the Fight against Hunger in the World
- 80 Om Prakash Roy**
Principal, Langat singh College
- 83 UNWIND**
- 86 Event Calendar**
- 88 Baywatch**
- 84 Tender News**
- 90 Advertiser's Index**

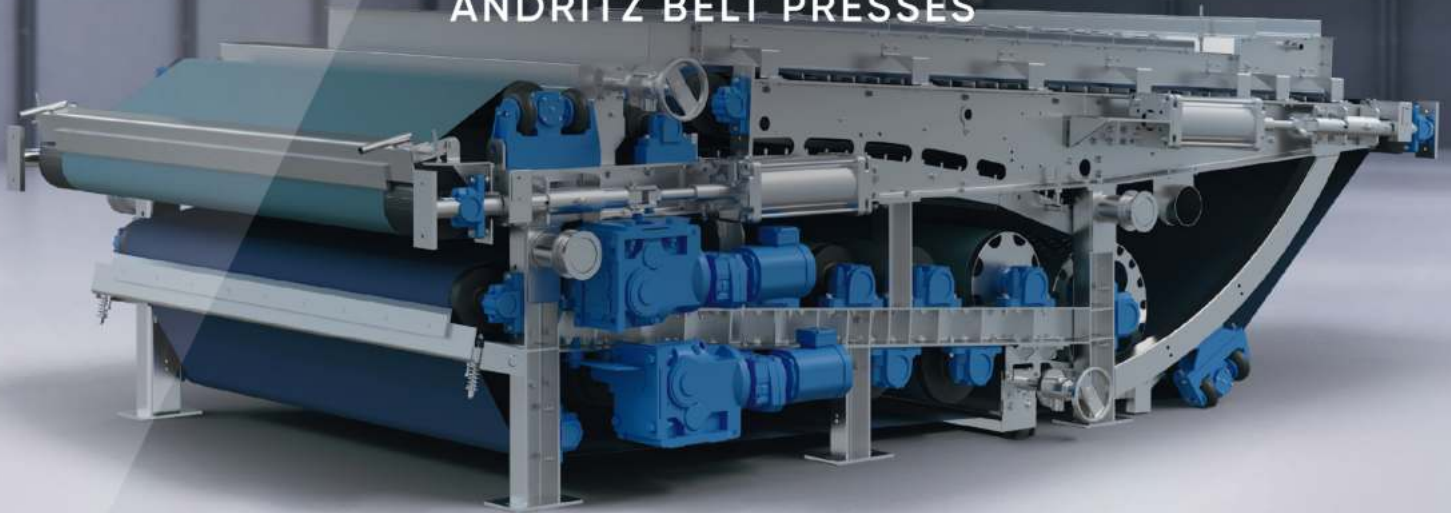
UPCOMING ISSUES

JULY 2024	NAVIGATING WASTEWATER CHALLENGES AMIDST CHANGING CONDITIONS
AUGUST 2024	IOT AND SUSTAINABLE WATER INFRASTRUCTURE
SEPTEMBER 2024	DIGITAL WATER AND MONITORING
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CELEBRATING 24 YEARS OF EVERYTHINGABOUTWATER MAGAZINE

Dear Readers,

As we mark the 24th anniversary of EverythingAboutWater magazine, I extend a heartfelt thank you to all our readers, contributors, subscribers, advertisers, and well-wishers. Over the past 24 years, we have navigated a journey filled with aspirations, achievements, challenges, and growth. The water and wastewater industry has moved from the periphery to the forefront, becoming a critical area of focus both in India and globally.

In today's interconnected global economy, it is imperative for water professionals to stay abreast of evolving trends and adapt accordingly. Recent discussions with industry leaders, government officials, and consultants highlight the necessity for the industry to swiftly adapt to the changing landscape and reinvent itself. The market opportunities within the water sector are now more dynamic than ever. India is poised to drive growth in the coming decade.

Technological advancements continue to be a pivotal factor in this industry. As fundamental water supply needs are increasingly met, there is a growing demand for innovative and cost-effective technologies to manage complex water issues, particularly in remote areas. Incremental improvements in process efficiency, operations, and cost management are rendering older technologies obsolete. Research institutions worldwide are striving for the next significant breakthrough that will disrupt current practices and redefine industry standards.

Additionally, the water industry has witnessed a significant transformation in the way sustainability and environmental impact are prioritized. With increasing awareness of climate change and resource scarcity, there is a heightened focus on sustainable water management practices. Companies and municipalities are investing in green infrastructure, water recycling, and conservation techniques to ensure long-term water availability.

Public-private partnerships are playing a crucial role in driving these initiatives, ensuring that both economic and environmental goals are met. As we look ahead, it is evident that the integration of sustainability into water management will not only be a trend but a necessity, guiding the industry's evolution towards a more resilient and eco-friendly future.

This special anniversary issue of EverythingAboutWater, thus, delves into the roadmap for the water industry over the next decade, exploring the key issues that will shape its evolution in the dynamic era.

Thanks & Regards,

Simran Arora

Associate Editor

EverythingAboutWater Magazine



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Frazer and Haws launches a premium collection of Home Accessories that are a combination of Silver & Leather

Silver from the terrene of purity, Frazer and Haws is a 150 year old British heritage brand that contributes to create heritage pieces which are Art in Silver. Frazer and Haws prides itself for being the first choice of the crème de la crème. Their clientele includes The Prince of Wales, The Maharaja of Nepal, other heads of state and notable families around the world. What distinguishes them from others are their limited edition original designs, all of which are hallmarked with the purity of 92.5% sterling silver. They are the only international silversmiths in the country to produce contemporary fusion designs by combining various materials like metal, wood and stone.

The accomplished skills have bolstered Frazer and Haws to serve the needs of the baronial and the imperial guests that enlist Queen Victoria, Queen Mary, Mrs. and Mr. Winston Churchill, Edwina – Countess Mountbatten, Admiral Lord Nelson, Duke and Duchess of Windsor, Queen Alexandra and Edward VII, Vita Sackville, Yash Chopra, Rani Mukherjee etc. Frazer and Haws has set a precedent in the world of meticulously crafted silverware.

With a purity of 92.5% sterling silver, there is a wide agglomeration of masterpieces which epitomize the significance of the Indian tradition and the cultural values in our lives. There is a wide range of splendid timepieces, paperweights, key rings, photo frames, card holders and much more to choose from. The magnificent designs gives a royal ambience to your decor. There are various other things like desk accessories, Trophies & Mementos, Bar Accessories, Serve-ware, Desk accessories and wall art in silver. Frazer and Haws is also adroit at making 'Bespoke' pieces.

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Fresh Attempt to Rejuvenate Naini Lake: MCD Invites Bids to Beautify Model Town Attraction

In a renewed push to rejuvenate the Naini Lake located in Model Town, north Delhi, the Municipal Corporation of Delhi (MCD) invited bids to execute the ₹10.7-crore lake redevelopment project, senior municipal officials said on Thursday. This is the third attempt to rejuvenate the lake.

Under the project, MCD will lay pipelines to ferry wastewater from the Coronation Pillar wastewater treatment plant to Model Town. Additionally, the project will also help provide irrigation water for parks in the vicinity and reduce groundwater dependence, officials said. A senior MCD official said a notice inviting tenders for the project was reissued on June 19 and the technical bids were opened on Thursday. "The project involves laying down pipelines and associated arrangement of carrying treated water from STP, Coronation Pillar, Mukherjee Nagar to Naini Lake by developing pump house and sump wells. This component along is likely to cost around ₹5.46 crores," the official said.

The lake is located amid Model Town, across 6.5 acres, and is a popular spot for leisurely strolls and family outings. MCD's two previous attempts to rejuvenate the lake failed due to technical and procedural issues.

Officials said another ₹71 lakhs will be spent on subsequent arrangements to provide irrigation water from the lake to nearby parks. The project is being funded by the Central government's Amrit Sarovar Mission.

More than a third of 21 waterbodies taken up by the civic body under this project have remained stuck, and work at several sites was yet to be launched. On June 22, MCD announced that it will rejuvenate 21 ponds and waterbodies across the city under the first phase of the Amrit Sarovar Mission.

The rejuvenation and beautification work of these waterbodies was to be completed by March 31, 2023, and Naini Lake was one of nine sites where the project was pending.

A second senior MCD official said the lake is currently fed by groundwater drawn from

ATER NEWS

borewells. “Ideally, a lake should be recharging the groundwater levels. In case of Naini Lake, we operate pumps to feed the lake. The use of treated wastewater will help the entire region,” the official said.

Musical fountain and beautification

The civic body will also undertake beautification of the lake area by adding 7,000 new species of plants, new walkways, designer boundary walls, benches and basic infrastructure, such as a peripheral stormwater drain, officials said.

According to the fresh bids, the project work includes the construction of a boundary wall, renovation of the toilet block and addition of benches. “We will be strengthening the existing peripheral stormwater drain along the lake by providing RCC drain. Around ₹26 lakhs will be spent on provision of lighting arrangement in the lake and horticulture work,” the second official said.

The civic body will also develop two floating fountains in the lake at a cost of ₹39 lakhs. “The private company executing the work will also be undertaking operation and maintenance of the lake,” the official said.



International Team Inspects Polavaram Project, to Submit Report to Jal Shakti Ministry

A team of international experts visited the Polavaram Irrigation Project site on Sunday as part of its four-day visit to assess the problems with the diaphragm wall, guide bund, and cofferdams. After studying the structures in depth, they will submit a report to the Jal Shakti Ministry.

Four experts — David P. Paul and Gain Franco de Sikko are from the US, and Richard Danielle and Sean Hinch Berger from Canada — arrived in New Delhi on Saturday.

According to the Central Water Commission (CWC), all four individuals are experts in international dam safety, structural engineering, structural solutions, civil engineering, hydraulics, and geo-technology engineering. Following a briefing from the officials of the

DROPLETS

Are Southeast Asia's energy transition deals in jeopardy?

In Indonesia, there's talk of the country seeking alternative funding due to the slow progress of the US\$20 billion Just Energy Transition Partnership (JETP) it struck with developed countries at the G20 in Bali less than two years ago. Our lead stories this week suggest that high-level agreements to push the region's coal-dependent economies towards clean energy look increasingly in peril.

Both Indonesia and the Philippines recorded their highest historical levels of coal usage last year, while new reports highlight how a new coal plant in Vietnam is drawing scrutiny from nations that bankrolled the US-led \$15.5 billion JETP package for the country. With the current political uncertainty in the United States and the possible re-election of Donald Trump, who believes in unfettered fossil fuel development, it looks like future deals to wean Southeast Asia off dirty energy may be in jeopardy.

Still, no region can match the Middle East for fossil fuel dependence. This week, Eco-Business is excited to debut its Insights Middle East newsletter to explore the complexities and opportunities in the oil-rich region as companies look to strengthen their ESG focus and a stronger narrative on corporate sustainability emerges.

In our inaugural edition, Middle East correspondent Rachel Kelly reported on Dubai's efforts to future-proof itself following April's shock flash floods, and speaks to Abu Dhabi Securities Exchange's (ADX) strategy chief about ADX's listed companies' approach to sustainability. We continue to bring you developments from across the region and beyond.



Jal Shakti Ministry about the project, the expert team arrived at Rajamahendravaram on Saturday night, and commenced their inspection of the Polavaram project on Sunday.

The team is expected to stay at the project site till July 3. On the first two days, the experts will study the project design and ongoing works in detail. On the remaining two days, they will hold review meetings with officials working on the project, CWC, Polavaram Project Authority, CSMRS (Central Soil and Materials Research Station) and executing agencies to assess the situation.

The Central government invited the four experts on receiving a request from the State government for assistance in issues pertaining to the reconstruction of the diaphragm-wall.

Team to advise on action to be taken pertaining to damaged diaphragm wall

The team will advise on whether D-walls parallel to the damaged portion should be constructed or a new D-wall should be built. The estimated cost for building a new D-wall is around Rs 1,000 crore.

Following his visit to the Polavaram Project, Chief Minister N Chandrababu Naidu had released a white paper on June 28 and squarely blamed the YSRC president and former chief minister YS Jagan Mohan Reddy for the delay in completing the project. Naidu attributed the damage caused to the D-wall and the leaks in the cofferdams to the “ignorant decisions” taken by the previous government.

He had stated that changing contractual agencies and transferring experienced officials during the execution of crucial works on the upper cofferdam resulted in a gap in the project, which further proved fatal during the floods in 2019 and 2020.

Naidu opined that the gap in the upper cofferdam should be plugged before the flood season. However, due to changes in contractual agencies and officials, no work was done. In the subsequent floods, about 35% of the diaphragm wall was badly damaged at four different places. The Chief Minister also raised concerns over the stability of the upper cofferdam, given the leakages observed



Modern Coach Factory, Rae Bareli: MCF Plans Boosting Water Conservation Capacity by 100 m Litres in 2024-25

Modern Coach Factory in Rae Bareli developed 100 million litres water conservation capacity in 2023-24, increasing total capacity to 530 million litres.

The Modern Coach Factory (MCF), in Rae Bareli, planned a water conservation strategy and developed 100 million litres water conservation capacity in 2023-24, as part of Jal Shakti Abhiyan, a government release read.

“With 100 million litres of water conservation capacity generation in 2023-24, total water conservation capacity of the MCF has risen to 530 million litres. The MCF has planned to further create 100 million litres water conservation capacity in the current year 2024-25,” an official said. In the financial year 2023-24, MCF Rae Bareli, executed five rainwater harvesting projects with a recharge potential of 30.20 million litres per year.

To optimise the cost of water conservation, innovative rainwater harvesting concept through recharge bore digging along the periphery of an existing pond has been developed, in which concrete and brick work has been eliminated.

Ten recharge bore wells had been constructed along the periphery of the existing pond, further increasing water recharge capacity of 33.12 million litres per year.

In addition, one existing pond in Joggers cum Eco Park had been enlarged, resulting in an increase of water holding capacity by 18 million litres. Three ponds with water holding capacity of 12.49 million litres have also been excavated.

Diversion of rainwater passing through MathanaNala on the MCF premises has also been executed. This is going to be a game changer as rainwater of large catchment areas covering dozens of villages will be tapped and used for rainwater harvesting.

A mega water conservation plan has been adopted and four ponds of total holding capacity 30.49 million litres and five rainwater harvesting and 10 recharge bores along the periphery of existing pond having total 63.22 million litres of recharge capacity was created during FY 2023-24.

Central Government to Provide Comprehensive Backing for Water Conservation and Irrigation Initiatives



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Water, the elixir of life, can indeed be a double-edged sword. Contaminated water can spread disease, while clean water is essential for health. This article delves into the world of enhanced hydration, exploring the potential benefits of alkaline ionized water and hydrogen molecular water.

Our bodies naturally maintain a slightly acidic pH level. Proponents of alkaline ionized water believe it can help neutralize this acidity, offering various health advantages. The ionization process supposedly creates water with a higher pH (more alkaline) and a negative Oxidation-Reduction Potential (ORP). ORP is a measure of a substance's ability to oxidize (donate electrons) or reduce (accept electrons). A negative ORP indicates antioxidant properties, potentially helping combat free radicals that damage cells.

Chief Minister Dr. Mohan Yadav chaired a review meeting today at Mantralaya of the Narmada Control Board's activities under the Narmada Valley Development Department. He emphasised the importance of maintaining continuous water flow at major ghats along the Narmada and highlighted ongoing efforts to expand irrigation infrastructure across the state. Dr. Yadav assured forthcoming Central Government funding for these initiatives. Discussions with Union Jal Shakti Minister Shri C.R. Patil, Minister of State Shri V. Somanna, and Shri Rajbhushan Chaudhary focused on water conservation, with a commitment from the Centre to provide special support to Madhya Pradesh. The meeting also covered the progress of two significant river-linking projects: the Ken-Betwa Link Project and the Parvati Kali Sindh Project.

Farmers to Receive Affordable Electricity

Chief Minister Dr. Yadav directed that new sources of hydropower should be developed to provide electricity to the farmers at affordable rates. Alternative energy sources should also be used. Chief Minister Dr. Yadav has directed that while benefiting from the Narmada, we must also contribute to its well-being. He emphasised the need for cleanliness and beautification of all public ghats, urging both administrative staff and the public to remain vigilant. Enhancing religious sites and improving amenities near the river are priorities, including constructing shelters for Narmada Parikrama pilgrims. Dr. Yadav called upon Jan Abhiyan Parishad and other voluntary organisations to develop additional facilities for Parikrama participants. Water sports and tourism development schemes are to be prioritised, alongside exploring options for small cargo ships and fish farming. Biodiversity research in the Narmada Valley and promoting pearl cultivation among farmers were also highlighted. He stressed regular monitoring and proposed the establishment of a "Jal police" for safeguarding major ghats and river banks. Additionally, he suggested replicating renewable energy initiatives like those at Omkareshwar and identifying sites for solar floating plants, encouraging investor participation in an upcoming Global Summit. Chief Minister Dr. Yadav directed to make maximum use of water in the ponds located downstream of Narmada. Water availability should be ensured in Yashwant Sagar and other reservoirs, which will help in averting the crisis during summers through water accumulation. Chief Minister Dr. Yadav directed to increase the use of cheap electricity through the pump storage system and to identify places for operating water ambulances for better connectivity for the villagers.

The dedication of approved projects in the near future was also discussed in the meeting. Information about the progress of the schemes implemented by Narmada Valley Development Authority was given through a presentation. In the meeting, discussion was held on Badadeo Joint Micro Irrigation Project, Ma Rewa Lift Irrigation Project,

Sondwa Lift Micro Irrigation Project, Niwali Lift Micro Irrigation Project, Maheshwar Janapav Lift Micro Irrigation Project, Sendhwa Lift Micro Irrigation Project, Dhar Lift Micro Irrigation Project, and other projects. Revenue Minister Shri Karan Singh Verma, Chief Secretary Smt. Veera Rana, Additional Chief Secretary Chief Minister's Office Dr. Rajesh Rajoura, and concerned officials were present. Tribal Affairs Minister Shri Vijay Shah joined the meeting virtually.

Tiruchy Railway Aims at Zero Wastage of Water, Sets Up Sewage Treatment Plant in Ponmalai

Tiruchy Railway Division recently established a state-of-the-art sewage treatment plant (STP) in Ponmalai, marking a significant step towards water conservation. Built at a cost of Rs 2.5 crores, the plant has a capacity to treat five lakh litres of wastewater per day. Senior railway officials said that the plant, now fully operational, processes wastewater from about 400 staff quarters in Ponmalai. The initiative is widely seen as a proactive measure by the railway to prevent water wastage. The treated water is repurposed for gardening. Officials said there are plans to establish similar facilities at more locations under the division.

"We treat wastewater from toilets and kitchens of the staff quarters and the Rest House. While Tiruchy doesn't currently face water shortage, it's crucial to plan for future needs. The railway is dedicated to eco-friendly initiatives, and we are looking into establishing similar facilities in other areas within the division to manage waste from our quarters and offices," said an official. Tiruchy Railway Division has already implemented several water conservation measures, including the installation of 47 groundwater recharging wells. These wells, some as deep as 200 feet and as wide as 5.6 metres, are located throughout the division, including three at the Tiruchy Railway Junction, seven in Kallukuzhi, one in Kajamalai, and 36 across a 200-acre area in Ponmalai. Established between 2018 and 2019, these wells play a crucial role in maintaining groundwater levels, a senior official said. Residents have praised the railway's water conservation efforts. "The term STP became familiar when the city corporation began underground drainage works and announced a 100 MLD sewage treatment plant in Panjappur. However, their project, started in 2019, is still incomplete. Local bodies could learn from the railway's efficient execution and timely completion of such projects," said A Rajashekar, a resident of Ponmalai.

Ayodhya, Barabanki among 5 dists to achieve 100% 'catch the rain' target

Under the 'Catch The Rain' campaign launched by the state govt in 2019, Pilibhit, Ayodhya, Ambedkarnagar, Barabanki and Gonda are the

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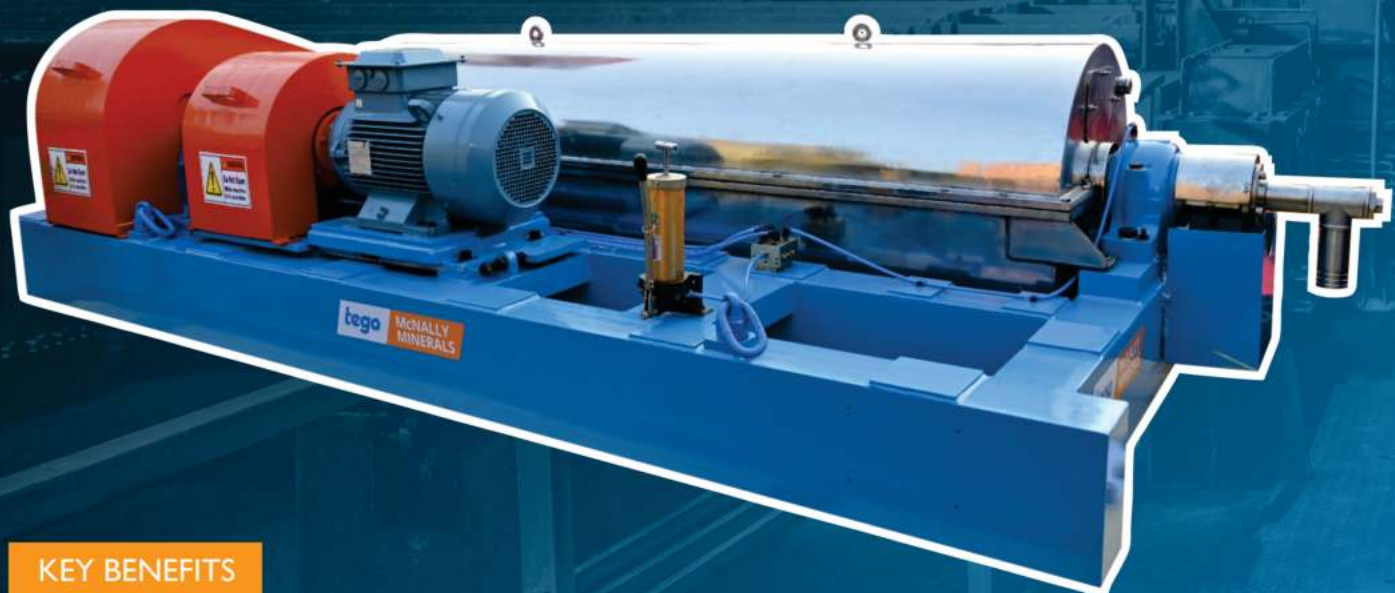
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NATIONAL WATER NEWS

JUNE 2024

top five districts in achieving targets under the mandatory installation of Rainwater Harvesting System (RTRWH) on govt and semi-govt buildings in districts. The five districts have reported a 100% completion of targets.

The campaign focuses on water conservation activities, including the rejuvenation of traditional water bodies, borewell recharge, watershed development, afforestation and the revival of small rivers. All govt and semi-govt buildings are mandated to install rooftop rainwater harvesting systems while instructions have been given to clear silt and any other obstructions in the water flow of Amrit Sarovars. A government spokesperson said that in the maintenance of Amrit Sarovars, Gorakhpur, Maharajganj, Prayagraj, Azamgarh and Barabanki are on the top, having completed the desilting and clearing of vegetation in the Sarovars and also by completing construction of all Sarovars. During a recent review of the 'Catch the Rain Campaign,' chief secretary DS Mishra instructed officials to complete desilting and restoration of water sources, including ponds, artificial recharge structures, small rivers, and check dams, before the monsoon season to season to maximise rainwater harvesting.

Instructions have been given to ensure that all govt and semi-govt buildings, such as offices, primary schools, anganwadi centres, community health centres, and panchayat buildings, are equipped with rooftop rainwater harvesting systems. Urban parks and public places are also to implement rainwater conservation measures. In addition to this, special awareness campaigns, rallies, seminars, and discussions will be organised for school children and the community. Chief Development Officers in each district have been appointed as nodal officers to oversee these efforts.

Pune: Ganeshkhind Road STP Status Report Sought From PMC

The Maharashtra State Biodiversity Board has requested a status report from the Pune Municipal Corporation (PMC) regarding the proposed 10 MLD sewage treatment plant (STP) to be constructed on the Ganeshkhind garden premises, owned by the Mahatma Phule Krishi Vidyalay (MPKV) in Aundh. The request came through a letter dated June 12, following complaints from concerned citizens. Citizens Chaitanya Ket, Meghana Bhandari, Gangotri Chanda, and Ameet Singh have opposed the project, arguing it would necessitate



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the felling of 50 trees in the Biodiversity Heritage Site (BHS). They filed a written complaint with the board on June 5, prompting the board to question the PMC.

Bhandari stated that the project threatens the garden's BHS status and would disrupt ongoing research activities conducted by MPKV college staff and students. Additionally, she noted that the presence of construction activities and tanker movements would disturb the local fauna.

In 2023, MPKV initially refused permission for the project due to its BHS status. However, in January, the state government granted in-principle approval for PMC to acquire the land for the STP.

Ket highlighted that the site hosts over 4,000 trees that would be adversely affected by the project, deeming the proposed location unsustainable. He called on the biodiversity board to revoke any permissions granted and urged PMC to consider alternative locations on their land.

MPKV officials claimed that PMC had not sought permission from the biodiversity board or the college's executive council for the project. A senior college official indicated that if the STP is deemed necessary, appropriate rules must be followed.

Jagdish Khanore, superintendent engineer of the JICA project drainage department, stated that the STP is intended to treat sewage from Aundh and Bopodi and would require only 0.3 hectares out of the total 33 hectares of land. He explained that the JICA project is under the purview of the Centre's Ministry of Environment, Forests, and Climate Change. While MPKV initially approved the land usage for the STP, a change in the college dean led to objections.

Following several meetings, the state government instructed a rewrite of the proposal, which was then submitted to and approved by the biodiversity board.

Khanore mentioned that they have received permission for soil testing and are prepared to explain the environmental benefits of the STP if they receive further inquiries from the board.

Srirangam Sewage Treatment Plant to be Commissioned Soon

The Tiruchi Corporation has taken steps to commission the city's first decentralised onsite sewage treatment plant (STP) near the YatriNivas in Srirangam.



The civic body launched the work on the STP in February, 2023. Taken up at an estimate of Rs. 1.33 crores, the plant has a capacity to treat about two million litres of wastewater a day. Although the project was supposed to be commissioned last year, the delay has been attributed to slow progress in installing the collection and flocculation tanks to remove the solids from the wastewater.

A trial run was conducted last month. It was found that the pH level of the treated water was around 7, which is neutral. "Measures are under way to commission the plant soon. New pipelines to discharge the treated water into the Kollidam will be installed," said a senior Corporation official.

According to officials, the process will remove contaminants from the water discharged by houses and commercial establishments and improve the quality of recycled water, which will be discharged into the Kollidam as per standards laid down by the Tamil Nadu Pollution Control Board.

The onsite STP was designed with the capacity to manage the surge in wastewater generation for the next two decades. Apart from preventing pollution of the groundwater, it was also expected to safeguard the livelihood of washermen who depend on the river.

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INFOTILES PARTNERS WITH ARUP TO MAXIMISE WATER INFRASTRUCTURE VALUE

Digital analytics company InfoTiles has entered a strategic partnership with global engineering consultancy Arup to empower water and wastewater utilities to maximise the value and sustainability of crucial water infrastructure.

Using innovative data analytics technology and artificial intelligence, the two companies will use their combined engineering expertise, digital capability, and wraparound service to help utilities across the water value chain make better-informed decisions and drive progress in digital asset management, data, and operational insight.

By leveraging data in innovative ways, using artificial intelligence (AI), including machine learning (ML), across asset operations, investment and strategy, InfoTiles and Arup will create tailored solutions for utilities. These will include data and proof-of-value exploration for infrastructure investment, scale-out support, and identify ways to use data to achieve improved operational outcomes.

These innovative ways to use data could include:

- Weather event forecasting to predict potential pumped asset failures.
- Anomaly detection on water and wastewater networks to identify trends, infiltration and blockages.
- Asset optimisation to enhance water treatment operation efficiency including dosing and maintenance cycles, energy use and carbon emissions.
- Effective performance management and forecasting of operation optimisation.

Johnny Gunneng, chief executive and founder of InfoTiles said, "Our partnership with Arup is an important milestone for InfoTiles. Teaming up with Arup isn't just about expanding markets, but also about co-creating integrated solutions that seamlessly blend digital ability with engineering



excellence.

"This is to support the utilities of tomorrow by offering transformative solutions and creating resilient systems that not only withstand critical challenges, but also champion sustainability."

Arup is a digital leader in the built environment and is committed to innovative research addressing the challenge of climate change.

The firm previously adopted the use of digital tools and AI to support utilities such as Dŵr Cymru Welsh Water by managing storm overflow using Arup's Fuse web software. The custom-made centralised platform enables utilities to make sustainable investment decisions, efficient collection and management of asset data, performance monitoring and knowledge sharing.

Bretton Davis, smart water lead at Arup said, "We recognise the challenges the water industry is facing. Customers want and need affordable services, the environment needs to be protected and enhanced, and asset health and the resilience of services needs to be maintained, all within the context of a changing climate.

"Our partnership with InfoTiles will enable us to deploy our combined digital expertise with in-depth engineering and sector knowledge and support utilities unlocking barriers keeping them from harnessing innovative possibilities through data and insight."

InfoTiles has already made significant progress in digitally transforming water utilities and municipalities in Norway, Sweden, Denmark, Switzerland and the UK. Leveraging AI for advanced data correction and analytics, the company's software streamlines water and wastewater network management processes to deliver data analysis in minutes rather than months.



RSK CREATES COMMON GLOBAL DATA EXCHANGE TO FOCUS ON WATER AND SHARED ENVIRONMENTAL SOLUTIONS

Singapore, 19 June 2024 – The RSK Group, a global leader in the delivery of sustainable solutions, has launched the Water Data Exchange, a global digital platform for water utilities to share water demand and consumption insights crucial to achieving water efficiency against the backdrop of climate change and continued environmental challenges.

RSK has been collaborating with a number of global utilities ahead of the project launch at Singapore International Water Week 2024. The group, a global leader in the delivery of sustainable solutions, operates across 40 countries with a strong presence in the water sector among its more than 200 environmental, engineering and technical services businesses.

RSK Water Data Exchange Project Lead and Head of Digital Water Thomas Allen said climate change presented a range of challenges across the world, with utilities lacking robust and consistent information on global water patterns needed to influence policy and infrastructure development.

Thomas said: “Water scarcity is a problem so big, it cannot be tackled alone. The good news is that water utilities by their very nature are collaborative, and the growth of smart metering is creating a volume of data with significant operational and social value. This offers tremendous opportunities for shared learning on water consumption, and a data exchange has the potential to offer not only raw data but also valuable insights on a range of topics, including water consumption patterns and water loss. With the reality of water as a scarce and precious resource, even within countries which have enjoyed the luxury of taking plentiful rainfall for granted, we feel the time is right to create a platform to support shared solutions.” In addition to informing the work of utilities and quality of life, Thomas said the data, which RSK intended to be freely available to water utilities sharing their own data, would be particularly useful in informing



academic research, regulator policy making and driving innovation.

The group emphasised that the project is based on the understanding that the ability to share information, insight and knowledge will be vital in adapting to the world’s future water resource demands.

Thomas added that, by sharing aggregated smart metering data, the Water Data Exchange would give utilities greater visibility outside of their supply areas and facilitate a standardised approach to per capita consumption around the world. Providing immediate access to real-time, updated information and reports for analysing water consumption data, the platform facilitates insights into water usage patterns and trends, and enables informed decision-making for effective water management and policy formulation.

RSK Chief Executive Officer Alan Ryder said funding for the project was linked to the group’s commitment to the United Nations Sustainable Development Goals, in this case specifically SDG 6, which focuses on ensuring the availability and sustainable management of water and sanitation for all.

Alan said: “Climate change represents a global

challenge, and nothing short of a shared global solution will be enough to adapt and protect our access to water. Countries which have access to greater resources can participate in the data exchange to ensure that developing nations, who often bear the brunt of the most devastating climate change impacts, have access to crucial information. This can inform and support infrastructure development. Increasingly, what we thought we knew about our countries and continents, their weather patterns, and climate is shifting and we have to work together to harness the collective knowledge which can make a difference.”

To find out more, and to register your interest, please visit <https://rskgroup.com/water-data-exchange/>

About RSK group

RSK is a global leader in the delivery of sustainable solutions, working with more than 8,000 clients in 40 countries on six continents. Its family of more than 200 environmental, engineering and technical services businesses and 15,000 employees work together to provide practical solutions to some of the greatest challenges societies have ever faced.

The company operates in most sectors of the economy, including many of those most critical to future global sustainability, such as water, energy, food and drink, infrastructure, urban development, mining and waste. With its integrated offering across research and development, consultancy and on-the-ground application, RSK can deliver a complete solution that is unrivalled in the market.

The company is certified to the ISO 9001, ISO 14001 and ISO 45001 international standards for quality, environmental management and health and safety management.

GLOBAL W

DROPLETS

Orbis Signs US Distribution Partnership with Core & Main

Orbis Intelligent Systems, a leader in water technology, is announcing a national distribution partnership with Core & Main, a trusted name in water infrastructure solutions. This collaboration combines Orbis' innovative SmartCap technology with Core & Main's extensive industry leadership and expertise, marking a significant milestone in the water industry.

Orbis and Core & Main are partnering to enhance water network performance and efficiency through the SmartCap technology. This acoustic fixed-base pipe monitoring system, housed in a fire hydrant cap, uses real-time data to detect leaks and reduce non-revenue water loss, providing a crucial role in modern water management.

Orbis, with its focus on cutting-edge infrastructure monitoring technologies, stands out as a key partner for water utilities and municipalities. Now, Orbis' SmartCap solution will be accessible nationwide through Core & Main's expansive distribution network.

To explore how Orbis' SmartCap technology can benefit your water operations, visit Orbis Intelligent Systems, or contact your local Core & Main CORE+ product specialist.



Active Membranes Receives Initial Round of Seed Funding to Accelerate Development of Award-winning Desalination Technology

Moorpark, California, July 9, 2024 – Active Membranes, developer of revolutionary, award-winning electrically-conducting membranes used in desalination, has closed its initial round of Seed Funding to further develop its game-changing desalination technology. This investment will facilitate Active's further corporate growth, technology scale-up, and commercialization, as well as the execution of several extended field pilot tests, all of which are co-funded by various US federal and state government agencies. The funding round includes investments from Natural Ventures, Echo River Capital, and Pacifica Water Solutions, one of Active Membranes' co-founders.

"Active Membranes is innovating the future of fresh water by redefining the technology used in reverse osmosis membrane desalination for both seawater and brackish water applications," said Arian Edalat, Co-founder and CEO. "This round of funding enables us to further refine our revolutionary technology and accelerate its commercialization. We greatly appreciate the confidence that our investors have placed in us and also recognize that their experience brings a significant value to our company that goes far beyond the infusion of capital," he added.

"Natural Ventures is thrilled to announce its investment in Active Membranes, a pioneering company in the field of desalination technology. As the global demand for fresh water continues to rise, especially in regions heavily reliant on desalination, the need to reduce both the economic and environmental costs of this vital process becomes increasingly urgent. Active Membranes takes a novel approach to desalination, augmenting membrane technology with unique characteristics that allow for efficient scaling. This investment underscores Natural Ventures' commitment to supporting innovative solutions that address critical challenges in water resource management and sustainability. We look forward to contributing to Active Membranes' journey and witnessing its impact on the global water crisis," stated Dr. Benjamin Tam, Operating Partner, Natural Ventures.

ATER NEWS

"Active Membranes will be a leader in advancing desalination through its innovative smart membranes. Active's unique electrically conducting coating will reduce the costs of water desalination among the existing installed base of reverse osmosis plants around the world," said Peter Yolles, Managing Partner of Echo River Capital. "This will fulfill Echo River's mission of innovating decentralized water treatment and satisfy our contribution towards SDG 6 – fresh drinking water for all," he added.

Active Membranes brings a new and entirely different approach to desalination membrane technology. Its membranes utilize the company's patented technology that incorporates tunable electrical potential into a spiral wound desalination membrane module to make it actively resistant to scaling and fouling during the desalination process.

With their anti-scaling, anti-fouling properties, these membranes require minimal pre-treatment and minimal usage of chemicals and consumables. They also operate at a higher recovery rate and significantly simplify operation. This results in a much lower footprint, lower capital costs, and reduced operating costs. In so doing, Active Membranes transforms desalination into a technology of choice rather than a technology of last resort.

Active membranes also offer another benefit.

"Not only can our membranes be used in large scale desalination projects and in commercial plants; they can also be used in point-of-use/point-of-entry systems in the household or office to produce clean potable water," said Edalat.

Based in California, Active Membranes has received numerous awards including the prestigious Technology Idol Award, the Global Prize for Innovation in Desalination hosted by the Kingdom of Saudi Arabia, and the More Water Less Concentrate Prize presented by the US Bureau of Reclamation, and is a finalist for the 2024 Earthshot Prize.



Phosphorus removal options explored in collaborative trials

Alternative approaches to phosphorus removal at rural wastewater treatment works are being explored in an innovation project led by United Utilities.

The ALT-P project, for which Spring Innovation is the knowledge-sharing partner, received

DROPLETS

NX Filtration receives orders from Thermax for various nanofiltration and ultrafiltration water projects in India

With over 40 years of history, Thermax is amongst the prime Indian companies focusing on water and wastewater treatment, with more than 20,000 water and wastewater treatment installations across various municipal, industrial and commercial applications.

After extensive successful piloting with NX Filtration's hollow fiber nanofiltration technology, Thermax will now be scaling up to full-scale water projects. Thermax initial order involves hollow fiber nanofiltration modules with an aggregate total capacity of approximately 5 million liters per day, and ultrafiltration modules with a total capacity of approximately 25 million liters per day, and will be used for various of its existing and new water treatment installations across India.

Arun Nair, regional sales director at NX Filtration, comments: "We are very pleased with our new partnership with Thermax. We are glad to have successfully converted a pilot into a first full-scale hollow fiber nanofiltration project for Thermax, and also to supply Thermax with our high-quality ultrafiltration modules. We are looking forward to further develop our relationship and apply our technology across more projects and applications with Thermax in the future."



funding through Ofwat's inaugural Water Breakthrough Challenge in 2021. Working alongside United Utilities are project partners Southern Water, Wessex Water, University of Portsmouth, Power & Water, Kolina, Hydro Industries and Evergreen. The water industry is heavily dependent on the use of metal-based coagulants for the removal of phosphorus, particularly at rural wastewater treatment plants. By exploring the key benefits, such as cost, reliability and sustainability, ALT-P aims to reduce the carbon footprint of wastewater treatment and increase resilience by reducing reliance on chemicals.

The alternatives being examined are:

Electrocoagulation and natural coagulation – onsite investigations led by United Utilities at Woolton Wastewater Treatment Works are complete and technical reporting is underway. Reactive media - investigations led by Southern Water and the University of Portsmouth are due to complete in October 2024. In the coming months, the ALT-P team will be discussing the project at upcoming sector events:

European Wastewater Management Conference, in Manchester, UK, on 2-3 July 2024.

ALT-P conference hosted by United Utilities at Haweswater Conference Centre, Lingley Mere, Warrington, on 17 September 2024. Spring will also host a project knowledge showcase event and three surgery sessions, as part of its best practice knowledge-sharing initiative. More details will be released soon.

Lisa Mansell, chief engineer (innovation and carbon) at United Utilities, said: "Through the ALT-P project, we aim to determine what can be achieved using alternative approaches and the climate benefits these could deliver for the water sector. "The project is really opening up new opportunities and we are now understanding, in more detail, what is required from us as water companies to incorporate these processes and move away from our fossil fuel-based standard solutions." Phosphorus can enter watercourses from various sources, including wastewater treatment works, agricultural land and urban run-off. High levels are damaging to water environments, promoting excessive algal growth and depriving fish and other aquatic animals of oxygen. In England, excess phosphorous remains the top reason for water bodies failing to achieve 'good' ecological status, and water companies are working to achieve ever-tightening targets for its removal from wastewater. Chloe Tooth, knowledge and communications manager at Spring said: "Spring is delighted to be the knowledge-sharing partner on this collaborative project to find alternative approaches to phosphorus removal at rural wastewater treatment works. "We are extremely proud of how our knowledge transfer service is helping to disseminate knowledge from these innovation projects and accelerate learning across the sector."

BASF and 'Pragati' extends full transparency & traceability to bio-based footwear solutions with SuCCESS code

BASF together with the world's first castor bean program 'Pragati' (Pragati), introduces certified traceability for bio-based solutions in footwear. Pragati was established with the unified sustainability code SuCCESS (Sustainable Castor Caring for Environmental and Social Standards) that sets a standard for certified sustainable castor oil.

"The footwear segment has been at the forefront of implementing sustainable solutions at BASF. With the availability of certified traceable bio-based polyurethane solutions, we are well-positioned to serve the growing demand for eco-friendly solutions for the footwear business in Asia," said Andy Postlethwaite, Senior Vice President, Performance Materials Asia Pacific, BASF.

The demand for sustainable footwear solutions has been growing steadily in tandem with consumer awareness. Footwear brands and manufacturers have a clear goal to enhance the sustainability aspects of their products without compromising on cost, performance or quality. Bio-based solutions offer enhanced sustainability by reducing fossil resource consumption. Additionally, castor oil is derived from the seeds of the non-edible castor oil plant (*Ricinus communis*). As it can grow in arid or semi-arid regions, it requires less water as well. The dried beans also have a long shelf life.

"Meanwhile, we are looking to extend the use of this bio-based solution to other segment applications as well," added Mr Postlethwaite.

Pragati was launched in May 2016 in Gujarat, India as the region produces about 70% of the world's supply of castor beans. Over 7,000 hectares of generally semi-arid land are now farmed according to the SuCCESS sustainability code since its introduction in the region. More than 7,000 farmers have been trained, audited, and certified. Over 74,500 tons of certified castor seeds have been cultivated, and year 7 yield is 36% higher than the yield published by the local government for this region.



JUNE 2024

GLOBAL WATER NEWS



Water critical to infrastructure and construction, say Ministers

The importance of water in delivering sustainable infrastructure was the theme of keynote addresses to delegates at Water Africa and West African Building & Construction 2024, by representatives of both the Ghana Ministry of Sanitation & Water Resources and the Ministry of Works & Housing. Deputy Minister of Sanitation & Water Resources, Amidu Chinra Isgahaku said that the Ministry saw the event as a “footbridge” to bring stakeholders in water, sanitation & hygiene (WASH) and building & construction together.

“One key benefit to derive from such a forum will be the efficiency in infrastructure development that can be driven by the seamless integration of water and sanitation infrastructure and service provision into building projects,” he said. “When this is done, it results in efficient use of resources, reduced construction costs and added value to building projects.” Speaking on behalf of the Minister of Works & Housing, Ebenezer Mac-Tetteh, director of works, said, “Investing in water infrastructure, including treatment plants, distribution networks and sanitation systems, goes hand-in-hand with building strong and sustainable infrastructure. By prioritising water alongside traditional infrastructure projects, we can ensure the health and wellbeing of our communities for generations to come.”

Mac-Tetteh also said that the adoption of public-private partnerships (PPPs) by the Ministry presents a promising approach. “PPPs leverage the expertise and financial resources of the private sector, enabling the development of cost-effective housing solutions,” he said. The Deputy Minister also spoke about the UN Sustainable Development Goal for water, “This goal is not limited to access to safe and affordable sanitation and drinking water services,” he said, “but also stretches to the need to protect and preserve the quality and quantity of our water bodies for the present and for future generations.” The three-day event is taking place at the Accra International Conference Centre, Ghana, 26-28 June 2024. It features a full seminar and certificated workshop programme alongside the trade exhibition. Entry is free,

and some 1,200 visitors are expected to attend.

“African leaders present here are eager to receive pragmatic policy recommendations to inform effective policy decisions for sustainable development,” said Mac-Tetteh. “Innovative infrastructure serves as the foundation upon which we can build a more prosperous and equitable Africa.” Event organiser Tracey Nolan-Shaw, managing director of ACE Event Management, received a citation from the Ghana Institution of Engineering, which has partnered the event and supported development of the seminar programme. ACE is celebrating 30 years since the first Water Africa event was held in Ghana in 1994. Nolan-Shaw said, “We have delivered the Water Africa event across the continent for 30 years, and I am delighted to be back in Ghana for this important anniversary. As always, we have had the most extraordinary welcome and I trust delegates, exhibitors and dignitaries will find fruitful ways to collaborate to push the water and infrastructure agenda forward. “It is our great pleasure to welcome representatives from the Ministries of Sanitation & Water and Works & Housing to Water Africa and West Africa Building & Construction 2024. Their participation underscores the importance of water, sanitation, infrastructure and housing in meeting all UN Sustainable Development Goals in Ghana and across Africa.”



bNovate Technologies and MATTEN sign groundbreaking distribution agreement to enhance water safety across Asia

In a landmark move set to revolutionise water safety across Asia, Switzerland's bNovate Technologies SA, which provides rapid monitoring and analysis of water, sealed its very first partnership in Asia, appointing Singapore's MATTEN Plant as its official Asian distributor.

This significant collaboration was cemented during the Singapore International Water Week. bNovate CEO Serge Gander and MATTEN Plant CEO Victor Lim joined forces to bring cutting-edge,

automated solutions for industrial microbiology to new markets, especially in the food and beverage sectors in the Philippines and Vietnam.

“We are thrilled to partner with MattenPlant,” said Serge Gander, CEO of bNovate. “Their expertise in integrating water technologies and their strong presence in Asia align perfectly with our global ambition of making water safer with our automated and digital monitoring solutions. This agreement marks a significant milestone for bNovate, enabling us to reach new markets and better serve our customers.” Using state-of-the-art flow cytometry technology, bNovate’s BactoSense instrument measures cell concentrations in just 20 minutes, proactively addressing abnormalities and deviations from baseline microbial profiles. This technology ensures swift, accurate, waterborne microbe detection, safeguarding public health and industry standards. Victor Lim, CEO of MattenPlant, shared his enthusiasm: “We are very impressed with what bNovate brings to the market in their range of monitoring equipment. This is an exciting opportunity for our companies to work together and bring highly effective water safety solutions to our customers, particularly in the food and beverage industry. We will leverage our local presence to provide training, service and pilot testing. This is to enhance customer’s engagement and experience of BactoSense”

Asia faces significant water challenges in many regions, including contamination from industrial and agricultural activities, rapid urbanisation and inadequate water infrastructure. The partnership with MattenPlant addresses these critical issues by introducing advanced Swiss water monitoring technologies that provide real-time, precise data, enabling proactive management and remediation. By leveraging bNovate’s innovative solutions, communities and industries across Asia can achieve safer, cleaner water, ultimately enhancing public health and supporting sustainable development. This collaboration represents a pivotal step in transforming regional water safety standards, ensuring that every drop meets the highest quality standard.



RSK Welcomes Strategic Investment from Searchlight Capital Partners and Ares Management

RSK Group Limited (“RSK” or the “Company”), a global leader in the delivery of sustainable solutions, today announced it has entered into an agreement to receive a £500 million preferred equity investment from a consortium led by Searchlight Capital Partners, L.P. (“Searchlight”), and Ares Management Corporation funds (“Ares”). In addition, Ares has committed an incremental £300 million debt facility to further support RSK’s growth plans, bringing total available debt facilities provided by Ares to £1.4 billion.

Founded in 1989 by its CEO Alan Ryder, RSK and its 15,000 employees provide end-to-end, bespoke environmental consulting and engineering solutions to a vast array of clients across the Water, Energy, Construction and Infrastructure sectors. The additional capital is expected to support the ambitions articulated in RSK’s 2030 Global Strategy, including organic growth initiatives and the continued execution of the Company’s acquisition strategy.

“RSK is very pleased to welcome a new group of investors and further strengthen our relationship with Ares,” said Dr Alan Ryder, Founder and CEO. “This strategic partnership marks a pivotal moment for RSK as we take another step towards our long-term vision of becoming the world’s largest and most trusted provider of sustainable solutions. Searchlight and Ares’ expertise in our industry, combined with their track record of supporting growth initiatives, will be instrumental as we execute on our M&A strategy and expand our service offerings. After three decades, RSK remains committed to delivering environmental and engineering services to help government and business clients around the world achieve a more sustainable future. The opportunities for RSK increase at pace.” James Redmayne, Partner at Searchlight said, “We are delighted to be partnering with Alan and the RSK management team, as they embark on the next phase of their journey to becoming the leading global provider of sustainability solutions for their customers. The unique employee-ownership culture of the business provides the perfect platform for RSK to continue its stated mission of striving to address the current and future impacts of climate change.”

Giles Marshall, Partner at Searchlight, added, “The evolving regulatory landscape, accelerating global energy transition and goal of providing clean water and sanitation for all, present increasing challenges and opportunities for RSK’s customers, which the business is uniquely positioned to execute on. We look forward to partnering with the management team to support their continued growth and industry-leading service.”

Water critical to infrastructure and construction, say Ministers

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UAE Implements Drinking Water Distribution Campaign in Khan Younis

“Operation Chivalrous Knight 3” has launched a campaign to distribute drinking water to displaced Palestinian families across various areas of Khan Younis. The initiative is aimed at alleviating their suffering amidst the stoppage of desalination plants and the lack of basic necessities of life and infrastructure due to the dire conditions in the Gaza Strip.

The water-filled tankers headed to Khan Younis in cooperation with the Coastal Municipalities Water Utility, to provide residents with drinking water, in a move aimed at providing basic needs, improving living conditions in shelters and reducing the water crisis suffered by thousands as a result of the absence and destruction of water lines. As part of supporting displaced Palestinian families with potable water, the UAE has contributed to providing water in displacement camps and shelters in Khan Younis city. The project benefits 50,000 people, with 116,000 litres of water being filled daily.

The UAE, through its humanitarian arm “Operation Chivalrous Knight 3”, provides drinking water to the residents in various areas to facilitate their access to water given the difficulty they face in light of the suffering and lack of the basics of life. This is also because of the challenging conditions faced by municipalities in the Gaza Strip, which prevents them from providing basic services, including water, to citizens, causing a humanitarian catastrophe.



Idrica hosts World Bank digital training week

Nearly 40 water company managers from Africa and Latin America, as well as members of the World Bank, recently traveled to Valencia (Spain) to participate in a training course on the digital transformation of water management. The topics covered included data management such as Big Data and Artificial Intelligence, information security, E-billing, asset management, micro and macro metering, and leak

detection July 3, 2024. Around 40 water utility leaders from Africa and Latin America, as well as members of the World Bank, recently traveled to Valencia (Spain) to participate in a training course on the digital transformation of water management. Idrica, a company specializing in integrated water cycle management in different parts of the world, was in charge of delivering and hosting this “Digital Training Week”, as part of the digital consultancy project that the company is carrying out for the World Bank Group.

“The Digital Training Week was extremely useful for the client countries we serve, as it could have a crucial impact for them. The water and sanitation utilities we work with are able to transform data into operational knowledge, which helps them make better decisions so they can build a resilient water future. In addition, they will be able to make further progress towards customer-centricity,” said Jean-Martin Brault, the leader of the World Bank’s Digital Water team. During the intense four-day event, several Idrica experts, in collaboration with the World Bank’s Digital Water team, gave training sessions on key areas for the digital transformation of the water sector. The topics covered included data management such as Big Data and Artificial Intelligence, information security, E-billing, asset management, micro and macro metering, and leak detection. The World Bank’s knowledge of the countries and their specific contexts was fundamental for the team leaders to learn and implement these tools in their operations at country level.

Another important part of the event were four one-on-one sessions in which water utilities met with digital water experts, Idrica, and the World Bank team leaders to discuss and seek solutions to the challenges on the table. Attendees were able to visit a number of facilities run by Global Omnium, the water utility that launched Idrica. These visits included EMIVASA’s digital twin, the GOLab (Global Omnium’s Technology Center), and the utility’s operating headquarters. Finally, participants were given a behind-the-scenes tour around the Oceanografic, the largest aquarium in Europe. Idrica’s role: framework contract with the World Bank to support strategic digital activities

This training program is part of the framework contract Idrica signed with the World Bank to support strategic digital activities. In this project, Idrica provides a specialized consultancy and advisory service to respond to the technological challenges that the World Bank has identified in the water sector in certain countries. This service draws on the expertise of the World Bank’s specialists and Idrica’s experience in digital transformation and the application of innovative solutions to sustainably optimize the use of resources. Idrica was able to transmit its knowledge, tools and the methods it uses in its digital

transformation consultancy services through this course, with the aim of identifying the needs and challenges facing the various organizations and analyzing their processes. However, far from being a solely theoretical exercise, action plans were developed under the guidance of the country experts at the World Bank, so that each operator can deploy their digital transformation plans, as well as develop the capabilities of their teams to upscale these digital projects. As Jaime Barba, Idrica’s CEO, pointed out during the course’s introduction, “the important thing in any digital transformation strategy is to change processes in the company (...) and this means starting with people, if you want it to work”.

Both attendees and organizers highlighted the success of the training week and the quality of the knowledge imparted. In the words of Vanessa Fontana, a Project Manager at Idrica and the training coordinator, “it has been a highly rewarding experience, with expertise being shared between different countries and cultures, each with our different realities in the immense world of water digitization.” Both the World Bank and Idrica, who have been working together for three years, were very satisfied with the project’s outcomes and expressed their interest in continuing this endeavor. “We hope this will be the first of many weeks of training,” said Jean Martin Brault, on behalf of the World Bank.



CleanEnviro Summit Singapore and Singapore International Water Week 2024 Conclude with Transformative Insights and Strengthened Global Alliances

This year’s CleanEnviro Summit Singapore (CESG) and Singapore International Water Week (SIWW) brought together stakeholders from governments, academia, industry and international organisations to share best practices, co-create innovative environmental and urban water solutions, and generate new business opportunities.



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2 Hosting over 30,000 attendees, CESG 2024 from 19 – 21 June and SIWW2024 from 18 – 22 June saw the announcements of strategic partnerships, calls for tender and for research grants, and facilitated numerous Memorandum of Understanding (MoU) signings towards building a greener, more climate-resilient and sustainable future amidst resource scarcity globally.

3 To this end, CESG 2024 and SIWW2024 have paved the way for several significant initiatives, rallying the industries to take ownership to tackle environmental and water challenges. These include:

CESG 2024

S\$90 million boost for the environmental services industry through the Productivity Solutions Grant to accelerate the adoption of technological solutions and equipment to strengthen innovation, improve productivity and create quality jobs. Signings of seven Memorandum of Understanding (MoU) at CESG2024 to advance opportunities in technology, innovation and co-creation of solutions for the clean environment and sustainability space Launch of Enviro Tech Innovation Hub, a “living laboratory” dedicated to advancing sustainable environmental cleaning and integrated facilities management by co-creating and test-bedding innovative solutions, planning and carrying out initiatives for workforce upskilling and talent development. Launch of new Closed-Loop Partners Network by SembWaste, a first-of-its-kind platform in Singapore aimed at fostering industry partnerships to advance a circular economy.

Modern Asia Environmental Holding's (MAEH) (a subsidiary of DOWA Eco-System Co., Ltd.) plans to extend material worth through re-use, re-processing and re-manufacturing, to support the broader goal of sustainable urban development. Exploration of new technologies for waste management via a Request for Information (RFI) to gather insights into the industry's interest and commercial viability of alternative disposal technologies to treat mixed municipal solid waste.

Strengthening efforts to nurture young talents in the environmental services industry with nine Polytechnic and ITE students awarded scholarships under the NEA-Industry Scholarship Programme and recognising the pioneer batch of 26 Youth for Environmental Sustainability (YES) leaders who spearheaded 12 impactful projects and reached out to over 18,000 people to raise greater awareness on sustainability concerns. Both events echoed the pivotal role of collaborative platforms such as CESG and SIWW, to continue to move the dial for global sustainability and water management.

7 “As we progress towards our national and global sustainability

goals, we continue to navigate the complexities of climate change and sustainability. This is why platforms such as CESG are crucial in forging pathways for collaboration and innovation. Together with our global partners, we will be able to innovate new solutions and technologies that not only mitigate environmental impacts but also set new benchmarks for global sustainability practices,” said Mr. Kwok Wai Choong, Managing Director of CESG.

8 “As a unique global platform that brings together governments, cities, utilities, and industry from the region and the world, the 10th edition of SIWW marked a significant milestone as one of the most successful editions yet. We are confident that the knowledge sharing, thought leadership, and strategic collaborations that came forth from the event will continue to drive actionable solutions towards solving the world's most pressing urban water and associated climate challenges,” said Mr. Ryan Yuen, Managing Director of SIWW.

Egypt declared home to the world's largest water treatment facility, New Delta Irrigation Water Treatment Plant achieves four Guinness World Records

Constructed to the highest global standards by a joint venture comprising Arab Contractors, Hassan Allam Construction, Orascom Construction, and Metito. Recognized as the largest water treatment facility and plant globally in terms of area, operational capacity, epoxy coating, and sludge treatment. Completed within a record-setting timeframe of 24 months with a capacity of 7.5 million m³/day

The New Delta Irrigation Water Treatment Plant, constructed by a joint venture comprising Orascom Construction, Hassan Allam Construction, Arab Contractors, and Metito, under mandate from the Ministry of Defence – Armed Forces Engineering Authority, is declared the world's largest water treatment facility by the Guinness World Records (GWR). The plant secured four GWR global records including; the world's largest water treatment facility, the most capacious and operationally robust water treatment plant, the largest area for epoxy coating in structures, and the biggest sludge treatment plant globally.

These accolades were celebrated in an official ceremony attended by representatives from the JV companies; Hassan Allam Construction, Arab Contractors, Orascom Construction, and Metito, as well as government officials including: Dr. Hani Sweilem, Minister of Water Resources and Irrigation; Major General Ahmed Al-Azzazi, Head of the Engineering Authority of the Armed Forces; Mohamed El Dahshoury, CEO of Hassan Allam Construction; Karim Madwar, CEO of Metito Egypt and Managing Director Metito Africa; Hossam El Reefy, Senior Vice

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President of Arab Contractors; Ihab Mehawed, Managing Director Orascom Construction.

The plant has a remarkable production capacity of 7.5 million m³/day of agricultural drainage water which plays a crucial role in the reclamation and development of 2 million acres in the western Delta region. Spanning an expansive area exceeding 320,000m², the plant operates at an impressive capacity of 86.8 m³/second and boasts a substantial sludge treatment capability of 670.01 kg/s. This project stands as one of the most significant sustainability initiatives worldwide, incorporating state-of-the-art sustainable technologies and solutions. Completed within a record-setting time of 24 months, the plant serves as a pivotal component of Egypt's national water resources plan, aiming to ensure water security for the country and foster prosperity and sustainability for future generations.

Karim Madwar, CEO Metito Egypt and Managing Director Metito Africa, said: "We are thrilled with Egypt's concerted efforts to expand water treatment and desalination projects and proud to have secured these Guinness World Records. The New Delta mega project, the largest of its kind in the world, is a milestone in Metito's history, which spans more than 65 years and includes numerous iconic national projects in Egypt and around the world. Such records also represent a strong testament to Egypt and its leaders' commitment to sustainability in infrastructure, which represents a significant leap towards a more prosperous future. This aligns with the Egyptian national strategy to expand agricultural areas in the Western Desert region, enhance agricultural crop productivity to achieve self-sufficiency, and protect the environment by relying on advanced technologies and water management solutions."

Hassan Allam, CEO of Hassan Allam Holding, stated, "We are honoured to have achieved four global Guinness World Records for the New Delta Irrigation Water Treatment Plant. This accomplishment underscores the capability of Egyptian national companies to undertake large-scale projects that drive prosperity and ensure sustainability for future generations." He added, "The significance of this facility lies in its pivotal role in reclaiming agricultural lands and constructing new urban communities in the Delta region, expanding both agricultural and population areas in the country. Our contribution to this project reflects our ongoing commitment to national development and our strategic vision, which has been realized through the successful implementation of numerous infrastructure and sustainability projects over the years."

Ahmed El-Assar, CEO of Arab Contractors Company, stated: "The New Delta Irrigation Water Treatment Plant is a new achievement added to

the record of mega projects implemented by Arab Contractors Company in alliance with Egyptian national companies. It is truly a matter of pride that we have successfully built the world's largest water treatment plant entirely with 100% Egyptian labor, and we were able to finish the project in a record time..” He added: “The New Delta Plant treats 7.5 million cubic meters of agricultural wastewater daily, coming from the Old Delta after being transported through a 174-kilometer-long canal, which is considered the largest artificial river in the world located in the middle of Egypt's Western Desert. It aims to reclaim 2.2 million feddans. Despite the enormity and complexity of the project, it was successfully delivered in just 24 months. The New Delta Irrigation Water Treatment Plant project is a comprehensive developmental model of strategic importance and is part of the national priorities that Egypt gives to investment in the agricultural sector, considering it a top national security issue. It also represents significant support for the Egyptian economy.”

Osama Bishai, CEO – Orascom Construction added “This achievement underscores Orascom Construction's dedication to delivering innovative and sustainable solutions, and our leadership in the water sector which includes a treatment and desalination capacity of 17 million m³/day in Egypt and the Middle East. This project is the second of our projects to receive international recognition as one of the largest in the world which showcases our commitment to sustainability and also sets a benchmark for future infrastructure projects. Our collaborative efforts on high-profile projects, such as the New Delta Water Treatment Plant, not only enhance Egypt's infrastructure but also serve as an example of how the use of advanced technologies can effectively tackle significant environmental challenges.” This GWR recognition for the New Delta Irrigation Water Treatment Plant further highlights Egypt's efforts in sustainable water resource management and its dedication to building an eco-friendlier future that guarantees prosperity and water security for the upcoming generations and a holistic approach to water management, economic progress, and community welfare.





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Xylem's Venture Investing Strategy Targets Direct Investments in Innovative Startups and Leading Venture Capital Partners

WASHINGTON, DC (July 10, 2024) – Global water technology leader Xylem (NYSE: XYL) is expanding its corporate venture investing plans with \$50 million committed to support emerging companies and water services providers that solve critical climate challenges such as water scarcity, quality, and decarbonization.

Xylem aims to accelerate the availability of water solutions to address these challenges by directly investing in startups developing disruptive water technologies, and by investing in specialty venture capital funds. These investments are focused on companies developing cutting-edge solutions that

support Xylem's growth priorities, including advanced treatment, digital technology, and services to help manage complex water systems.

"As water scarcity intensifies and demand grows, the need for innovative thinking has never been more acute," said Sivan Zamir, Vice President, Xylem Innovation Labs. "Entrepreneurial founders and disruptive new technologies can be important sources of solutions to tackle some of the world's greatest water challenges. By collaborating with a broad network of partners, including venture capital firms and startups, we believe that we can bring essential innovations to market at speed and scale."

Xylem's expanded corporate venture capital framework builds on the success of existing partnerships. In 2022, Xylem invested a combined

\$20 million in Burnt Island Ventures, which targets early-stage water innovation, and The Westly Group, which focuses on energy, industry 4.0, and cybersecurity. (See 2022 announcement.) The framework also includes continuous evaluation of new investments in targeted venture capital funds, as

well as minority investments in start-up companies.



OSMOFLO AND CERAFILTEC GERMANY GMBH ANNOUNCE PARTNERSHIP AGREEMENT TO EXPAND INCORPORATION OF ADVANCED CERAMIC MEMBRANE SOLUTIONS FOR WATER AND WASTEWATER TREATMENT SYSTEMS

Burton, South Australia and Saarbrücken, Germany, June 9, 2024 – Osmoflo Water Management and CERAFILTEC Germany GmbH are pleased to announce their partnership agreement. This collaboration will leverage CERAFILTEC's expertise as a technology provider of high-performance ceramic membrane solutions and Osmoflo's innovative, sustainable water and wastewater management capabilities to enhance systems and provide superior treatment solutions.

The non-exclusive agreement will allow Osmoflo to further incorporate CERAFILTEC's advanced ceramic products into its water treatment processes and systems, across Australia and New Zealand. Osmoflo will work with end-users and integrators alike to quantify the benefits of the technology and actively promote and specify the CERAFILTEC technology in new build water, wastewater and desalination projects, as well as deliver direct replacements and retrofits for existing polymeric membrane installations. The collaborative focus will centre around upgrades with ceramic membranes for Membrane BioReactors (MBRs) and drinking water plants, as well as the treatment of tertiary water for reuse.

With this partnership, Osmoflo can provide customers with a state-of-the-art alternative to the conventional polymeric membranes which come with limitations of lifespan, maintenance issues and clear environmental concerns.

The value proposition of CERAFILTEC's ceramic membranes includes the ability to increase plant capacities at reduced energy consumption (which is increasingly important as water infrastructure is decarbonised), in addition to the inherently robust and flexible operating conditions that ceramic materials allow. Recent investments in manufacturing capacity, and economies of scale driven by the significant global uptake of the technology, means that ceramic systems offer increasingly competitive capital costs,

which when combined with the clear operating benefits - make them an appealing choice for operators, end-users and system integrators.

Most importantly, the sustainability impact of this technology, which offers great longevity, reusability, and a responsible PVDF- and PFAS-free solution, aligns with the United Nation's Sustainable Development Goal 6: "Clean water and sanitation for all", a mission shared by both Osmoflo and CERAFILTEC.

Osmoflo's General Manager of Strategic Growth, Scott Chalmers was quoted on the collaboration, "We look forward to providing drinking water plant upgrades, effluent recycling options and industrial water treatment solutions to our customers and clients using CERAFILTEC's advanced ceramic membranes."

"We look forward to working closely with Osmoflo to drive greater customer value in a market that values sustainable and reliable solutions," commented CERAFILTEC's Chief Growth Officer, Julius Gloeckner. "Ceramic membranes are recognized for their robustness and reliability, setting a new industry standard. Their advanced technology, with exceptional chemical resistance, offers significant operating flexibility. High tolerance to TSS, oil, and

temperature provides treatment options even for challenging feed waters, while a long lifespan ensures superior total cost of ownership for plant owners and operators."

With over 25 years of experience in ceramic filtration, the CERAFILTEC team has a long history of providing innovative solutions to its partners and customers, much like Osmoflo. Today, it is a leading global supplier of advanced ceramic membranes, offering technology and services to sustainably solve the most challenging water-related problems.

Since the inception of Osmoflo as a designer and fabricator of medical equipment in 1991, the organisation has always seen the enormous potential for membrane-based water treatment, evolving into the largest Australian-headquartered global desalination and water recycling company with a vision of a sustainable water future.

Both Osmoflo and CERAFILTEC are committed to this collaboration, which represents a significant step in innovation and technology. Together, they aim to fulfil their shared mission of providing sustainable, value-based water solutions that contribute to a circular economy.





INTERVIEW WITH Anil Sethi

Chairman,
Pump Academy Private Limited

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Our company's vision and mission are deeply rooted in our commitment to innovation and sustainability in water management. At Pump Academy Private Limited, we envision a future where cutting-edge technology and sustainable practices revolutionize water management globally. Our mission is to be a trusted partner, creating valued, single-sourced, efficient energy-saving and operation & maintenance solutions for a greener world, delivered with passion, expertise, teamwork, and a relentless focus on customer satisfaction.

Our competitive edge in the water industry stems from our pioneering product, iPUMPNET. This innovative system offers real-time monitoring, control, and diagnostics for pumping stations, enabling seamless remote management of pumps, motors, and associated assets. iPUMPNET's key features include adaptive modelling, deep learning, and machine

learning algorithms, which optimize the life cycle cost (LCC) of utility pumping sets. By improving operational efficiency by up to 35%, minimizing unscheduled breakdowns, and reducing energy costs by up to 25%, iPUMPNET offers a rapid return on investment and significantly lowers life cycle costs.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: The water industry is currently experiencing several significant trends and innovations. Increasing water demand, growing awareness of environmental and social impacts, and advancements in digital and smart technologies are driving these changes. Key trends include the adoption of circular water economy principles, which aim to reduce water consumption, reuse wastewater, and recover valuable resources. The development of decentralized and modular water systems is also gaining traction, providing localized and customized solutions, especially in remote and rural areas.

Looking ahead, I see the water industry evolving significantly over the next few years. Digitalization and data-driven strategies will become more prevalent, enhancing water management practices and well-informed decision-making. Integration of renewable energy sources, like solar and wind into water systems will increase, reducing greenhouse gas emissions and boosting energy efficiency. Artificial intelligence, machine learning, and big data analytics will play crucial roles in predicting water demand, optimizing distribution, and detecting leaks and faults, leading to smarter and more sustainable water management.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

iPUMPNET, OUR SIGNATURE SOLUTION, SETS US APART IN THE WATER SECTOR BY PROVIDING CUTTING-EDGE REMOTE MONITORING AND CONTROL CAPABILITIES FOR PUMPING INFRASTRUCTURE, REVOLUTIONIZING ASSET MANAGEMENT.



A: At Pump Academy, we are actively involved in several initiatives aimed at mitigating the impact of water scarcity and promoting sustainable water management in India. Among our significant projects under execution is one with the Bengaluru Water Supply and Sewerage Board (BWSSB). It focuses on optimizing the performance of BWSSB's 12 clear water pumping stations for the Cauvery water supply. Our digital solution, iPUMPNET, is crucial in this effort. iPUMPNET leverages AI, ML, and IIoT to optimize pumping station operations, thereby reducing energy consumption, avoiding unscheduled downtime, reducing life cycle costs, and extending the life of the pumping set.

We also align our mission with global sustainability goals by optimizing pumping stations to contribute to reduced environmental impact. Additionally, we have partnered with JSS Academy of Technical Education (JSSATE) in Bengaluru to foster knowledge sharing, research, and create a vibrant ecosystem for the optimization of pumping station operations.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A: India's water sector offers numerous investment opportunities, particularly in water supply and distribution, wastewater treatment and reuse, and irrigation and agriculture. Urbanization and industrialization are driving significant demand for water supply infrastructure, creating opportunities for upgrading and expanding existing systems, as well as developing new sources like desalination and rainwater harvesting.

Wastewater treatment and reuse are also critical areas,

with increasing awareness and regulation of environmental and health impacts. Advanced technologies such as membrane bioreactors and nutrient recovery are in demand. In agriculture, which consumes the largest share of water in India, there is a pressing need for efficient irrigation practices and climate-resilient farming methods like drip irrigation and precision agriculture. These areas are poised for significant growth and development.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: Several key technologies and innovations are driving improvements in efficiency and sustainability in water management. Smart pumps and valves, which adjust speed and flow according to water demand and pressure, are saving energy and reducing water losses. Smart water meters and sensors provide real-time data on water consumption and quality, enabling more informed decision-making.

Smart water networks integrate various systems and components, allowing for remote and automated operation and control. Advanced technologies like cloud computing and the Internet of Things (IoT) that store and process vast amounts of water data supports data-driven management practices. These technologies collectively enhance operational efficiency, reduce waste, and promote sustainable water use.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Digitalization and data-driven strategies offer substantial benefits to the water industry. By improving

the performance and reliability of water systems, these strategies help detect and diagnose problems such as leaks and faults, providing timely maintenance and repair solutions. They also optimize efficiency and sustainability by analyzing water demand and supply, offering recommendations for demand management and water allocation. Moreover, digitalization also enhances customer service by providing accurate consumption data, transparency in billing and offering personalized tariffs and incentives. Overall, these strategies lead to more efficient, sustainable and customer-centric water management practices.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: Managing the competing demands of agricultural, industrial, and domestic water users requires a multifaceted approach. One effective strategy is to implement a pricing system that reflects the scarcity and value of water, encouraging efficient and equitable use while generating revenue for infrastructure investments.

Promoting water conservation and reuse practices among different sectors, such as rainwater harvesting, drip irrigation, and industrial recycling, can also alleviate pressure on water resources. Strengthening coordination and cooperation among stakeholders, including government agencies, private sectors, civil society, and local communities, is crucial for fostering a shared vision and responsibility for water management and resolving conflicts and trade-offs effectively.



BY EMBRACING TECHNOLOGICAL ADVANCEMENTS, THE WATER INDUSTRY CAN MEET GROWING DEMANDS, ADAPT TO ENVIRONMENTAL CHALLENGES, AND ENSURE SUSTAINABLE WATER MANAGEMENT FOR FUTURE GENERATIONS.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: India can draw valuable lessons from countries that have successfully addressed water issues. For example, adopting an integrated water resources management (IWRM) approach, as seen in Singapore, can be beneficial. Singapore's holistic water management strategy involves water supply, demand, quality, and governance, ensuring water security despite limited resources.

Leveraging technology and innovation is another crucial lesson. Israel's world-class water technology industry, providing solutions for desalination, irrigation, and leak detection, has helped the country overcome water scarcity. Empowering local communities in water management, as practiced in Brazil, can also be effective. Brazil's participatory and decentralized system improves governance and stakeholder engagement, which can be adapted to India's diverse and decentralized water management landscape.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next

five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: In the next five to ten years, I anticipate significant technological advancements in the Indian water industry that will enhance efficiency, quality, and affordability of water services. Technologies like smart meters, sensors, and AI will enable real-time monitoring and management, reducing water losses and improving service delivery. Advances in membrane technologies and nanotechnology will enhance wastewater treatment and reuse, mitigating pollution and health risks.

Policy changes will also play a pivotal role. The revised National Water Policy can provide a comprehensive framework for water management, addressing issues like allocation, pricing, quality, and governance. Initiatives like the Jal Jeevan Mission, aiming to provide piped water to every rural household will create opportunities for private sector participation and investment.

Overall, the water industry in India is poised for substantial growth, driven by increasing urbanization, industrialization, and population. This will create a higher demand for water services and infrastructure,

stimulating innovation and adoption of sustainable water solutions such as rainwater harvesting and wastewater reuse.

VISION OF MY COMPANY: OUR COMPANY ENVISIONS A FUTURE WHERE CUTTING-EDGE TECHNOLOGY AND SUSTAINABLE PRACTICES REVOLUTIONIZE WATER MANAGEMENT GLOBALLY.

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About the Author

Anil Sethi is the Chairman of Pump Academy Private Limited. He is a distinguished industry leader with over five decades of expertise in water, power, sanitation, smart cities, metro rail, and civil infrastructure sectors, having executed over 400 projects across India. He founded Pump Academy to offer innovative solutions to water utilities and industries for pumping stations optimization and management.

His profound industry knowledge and contributions to nation-building initiatives have earned him widespread recognition and numerous prestigious awards. Under his dynamic leadership, Pump Academy has become a unique solution provider, leveraging modern technology to shape the future of water infrastructure. His entrepreneurial spirit and strategic insight continue to drive innovation in pump station management and efficiency.





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INTERVIEW WITH Jitender Thirwani

COO, SmarterHomes
Technologies Pvt. Ltd.

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Vision: Our vision at SmarterHomes is to revolutionize water management in apartment buildings worldwide by empowering individuals to make conscious and responsible water usage decisions. We aim to significantly reduce global water consumption, conserving precious groundwater resources and promoting sustainability.

Mission: Our mission is to provide innovative, IoT-based water metering solutions through our product, WaterOn. By enabling real-time tracking of water consumption, we promote responsible usage, ensure fair billing, and drive behavioral change to reduce water wastage by up to 35%.

SmarterHomes stands out in the water industry through:

- **Real-Time Tracking:** WaterOn offers precise, real-time water consumption data, enabling immediate feedback and responsible usage.

- **Behavioral Change:** We focus on driving significant reductions in water usage by making users aware of their consumption patterns, leading to up to 35% savings.
- **Leak Detection:** Our system includes advanced leak detection and remote valve shut-off via the mobile app, preventing wastage and giving users control.
- **Fair Billing:** WaterOn ensures users pay only for the water they consume, promoting fairness and encouraging conservation.
- **Proven Impact:** Our data shows WaterOn effectively reduces overall water usage, saving costs and conserving the precious resource water.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: Current Trends and Major Innovations in the Water Industry

The water industry is currently experiencing significant advancements driven by smart water management technologies, sustainable practices, and

AI-powered data analytics. Innovations such as IoT-based real-time monitoring, advanced metering infrastructure, and decentralized water treatment systems are transforming how water is managed and conserved. Public awareness and supportive governmental policies are also promoting efficient usage and conservation efforts.

Future of the Water Industry (Next 5-10 Years)

Considering global water scarcity, the next 5-10 years will see the water industry increasingly focus on sustainable innovations and efficient water management. The industry will integrate sophisticated smart technologies, enhance AI capabilities, and adopt practices like water recycling and rainwater harvesting. A holistic approach to integrated water management will be essential, supported by stronger regulations and global initiatives. Consumers will be empowered with real-time data and insights to drive conservation efforts, making the water industry more efficient, resilient, and sustainable in addressing the challenges of water scarcity.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

ABOUT SMARTERHOMES:

SMARTERHOMES IS A RESPONSE TO A REAL-WORLD PROBLEM OF LACK OF WATER METERING IN APARTMENT BUILDINGS. REVOLUTIONIZING WATER MANAGEMENT WITH IOT INNOVATION. EMPOWERING COMMUNITIES TO MEASURE, CONSERVE, AND THRIVE IN THE FACE OF WATER SCARCITY CHALLENGES.

A: At SmarterHomes, we combat water scarcity and promote sustainable water management in India through several key initiatives. We have deployed over 40,000 WaterOn smart meters across 7 cities, measuring more than 9 billion liters of water and raising over 5 million leakage alerts. Our IoT-based solutions provide real-time consumption tracking, advanced leak detection, and remote valve control. We collaborate with residential complexes and run public awareness campaigns to promote responsible water usage and conservation.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A: As a thought leader in the water management space, I see several promising investment opportunities in India's water sector. Firstly, there is significant potential in advanced water treatment technologies, especially those that focus on recycling and reuse. Innovations in decentralized water systems for both urban and rural areas are also promising, given the country's diverse water infrastructure needs. Additionally, smart water management solutions, including IoT-enabled monitoring and data analytics platforms, offer high growth potential. Lastly, initiatives that address agricultural water efficiency through precision irrigation and sustainable farming practices hold promise for enhancing water productivity and reducing agricultural water demand. These areas not only address current challenges but also align with India's goals for water conservation and sustainable development.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: Some of the key technologies and innovations that significantly enhance efficiency and sustainability in water management include:

- **IoT-based Smart Meters:** These devices provide

real-time data on water consumption, enabling users to monitor usage patterns and detect anomalies promptly. This data-driven approach promotes efficient water use and reduces wastage.

- **Advanced Leak Detection Systems:** Utilizing acoustic sensors and data analytics, these systems can pinpoint leaks in water distribution networks or within buildings swiftly. Early detection helps conserve water and prevents infrastructure damage.
- **Water Recycling and Reuse Technologies:** Innovations in greywater systems, wastewater treatment, and rainwater harvesting allow for the efficient reuse of water in various applications, reducing dependency on freshwater sources.
- **AI-driven Analytics:** Artificial intelligence algorithms analyze vast amounts of data to optimize water distribution, predict demand patterns, and improve operational efficiency. This predictive capability aids in proactive management and resource allocation.
- **Smart Irrigation Systems:** Precision irrigation technologies use sensors and weather data to deliver the right amount of water to crops, minimizing runoff and maximizing water efficiency in agriculture.

These technologies not only improve operational efficiency but also contribute significantly to sustainable water management practices by conserving resources, reducing energy consumption, and enhancing overall water quality and availability. Their integration represents a pivotal step towards addressing global water challenges effectively.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Digitalization and data-driven strategies offer transformative benefits to India's water industry. Real-time monitoring of water quality and infrastructure using IoT and digital sensors enables prompt detection of issues, reducing downtime and operational costs. Predictive analytics, based on historical data, help utilities anticipate demand fluctuations and optimize water distribution, potentially reducing water loss by up to 20-30%. Enhanced customer service through digital platforms provides users with immediate access to consumption data, fostering water conservation practices that can lead to savings of over 15-20% in residential usage. Moreover, data-driven insights empower policymakers to allocate resources effectively, guiding sustainable initiatives like water recycling and reuse, crucial for mitigating water scarcity challenges in the coming years.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: Balancing the needs of agricultural, industrial, and domestic water users requires integrated water management strategies that prioritize efficiency, equity, and sustainability. This involves implementing water pricing mechanisms that reflect true costs, promoting water-saving technologies in agriculture and industry, and enforcing regulations to prevent over-extraction and pollution. Collaborative decision-making involving stakeholders from all sectors and leveraging data-driven insights can ensure equitable distribution and sustainable use of water resources.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: India can glean valuable lessons from countries that have effectively managed water issues. India can draw inspiration from countries like Singapore, which has implemented comprehensive water management strategies including desalination, water recycling, and efficient water pricing. Another example is Israel, where innovative agricultural practices such as drip irrigation and precision farming have significantly improved water efficiency in agriculture, despite facing similar water scarcity challenges. These approaches highlight the importance of technological innovation, policy adaptation, and community engagement in addressing water issues, lessons that can be adapted to the Indian context through tailored initiatives and partnerships.

Key strategies include robust water governance frameworks, investment in infrastructure for efficient water use and distribution, adoption of water-saving technologies in agriculture and industry, and public awareness campaigns promoting conservation. These successes can be adapted to India by tailoring policies to local contexts, integrating traditional water management practices with modern innovations, and fostering partnerships between government, private sector, and communities to ensure sustainable water management practices are implemented effectively.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: Over the next five to ten years, the water industry in India is poised for significant advancements driven by technological innovations such as IoT-enabled smart water meters, advanced leak detection systems, and AI-driven analytics for predictive water management. Policy changes are expected to focus on promoting water conservation, enhancing water quality, and improving infrastructure resilience. Overall growth in the sector will be bolstered by increasing investments in sustainable water management practices and infrastructure development, aimed at addressing challenges like water scarcity and ensuring equitable access to clean water across urban and rural areas.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: One notable project we have been involved in addressed water-related challenges in Bangalore, focusing on an apartment complex with 80 flats heavily reliant on borewells. As the borewells depleted over time, the complex faced escalating costs from acquiring water tankers to meet daily needs. To mitigate this, we implemented a solution involving the installation of 163 IoT-based smart water meters. These meters accurately measured individual water consumption, allowing each household to be billed based on actual usage rather than a flat rate.

The outcomes were significant: the project achieved a 40% reduction in water consumption through enhanced awareness and responsible usage practices among residents. Real-time monitoring capabilities enabled immediate detection and mitigation of leaks or abnormal water usage, further minimizing wastage. Additionally, the integration of a smartphone app empowered residents to remotely monitor their water usage and even shut off their water supply when necessary, enhancing control and efficiency. This case study highlights the effectiveness of technology-driven solutions in water management, demonstrating how smart meters coupled with innovative billing and monitoring systems can promote sustainable water usage and cost savings for residential communities.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: The government, private sector, and civil society can collaborate effectively to ensure sustainable water

management and secure water resources for future generations in India through:

- **Policy Frameworks:** The government can establish robust water policies and regulations that incentivize water conservation, promote efficient water use, and ensure equitable distribution. By implementing these policies at the developer level, new projects can be designed with water-conscious practices from the outset, fostering sustainable water use in future developments.
- **Investment and Innovation:** The private sector can invest in research and development of water-saving technologies, infrastructure development, and sustainable practices like water recycling and reuse.
- **Public Awareness and Participation:** Civil society can engage in awareness campaigns, community-based initiatives, and advocacy efforts to promote responsible water usage and conservation behaviors.
- **Partnerships and Collaboration:** All stakeholders can foster partnerships to share knowledge, resources, and best practices in water management, ensuring coordinated efforts across sectors.
- **Monitoring and Accountability:** Establishing mechanisms for monitoring water usage, enforcing regulations, and holding stakeholders accountable for sustainable water practices is crucial for long-term management and preservation of water resources.

By leveraging their respective strengths and working collaboratively, these sectors can address water challenges effectively, safeguarding water resources for future generations in India.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: Innovation and entrepreneurship play a crucial role in driving positive changes in India's water industry by introducing new technologies, business models, and solutions that address water management challenges effectively. Startups and initiatives focusing on IoT-based water monitoring, decentralized water treatment systems, AI-driven analytics for water management, and water recycling technologies are particularly promising. Examples include companies

developing affordable and scalable solutions for leak detection, smart metering, and sustainable water use practices in both urban and rural contexts. These innovations not only improve water efficiency but also contribute to sustainability and resilience in India's water sector.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: The team is doing a great job in the water management space by consistently innovating and providing valuable insights on solutions to address water management challenges. Their commitment to excellence is evident in their contributions to advancing sustainable practices and improving water efficiency across various sectors. My advice to the team at EverythingAboutWater would be to continue focusing on innovation and customer-centric solutions in the water industry.

Q: 15. Lastly, How can our audience stay informed about your company's latest developments and initiatives?

A: To stay informed about our company's latest developments and initiatives, please visit our official website www.smarterhomes.com. You can also follow us on social media:
 LinkedIn: <https://www.linkedin.com/company/smarterhomes/>
 Twitter / X: <https://x.com/smarterhomes02>
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 YouTube: <https://www.youtube.com/@SmarterHomesTechnologies?app=desktop>

About the Author

Jitender Thirwani has been part of the journey of SmarterHomes over the last decade. Jitender has over 18 years of experience in Business Development, Channel Sales, and Project Management.



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Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A (JULIUS): We are driven to transform the water filtration industry by enabling CLEAN WATER. EVERYWHERE. At CERAFILTEC, we empower system integrators, plant owners, and operators with robust, reliable, and sustainable ceramic filtration technology. Our long-lasting, reusable solutions reduce maintenance and replacement needs, helping clients achieve their filtered water targets effortlessly. This enhances efficiency and profitability while fostering a circular economy.

We differentiate ourselves through our commitment to innovation and sustainability. Our ceramic filtration technology offers unmatched durability and performance, setting new standards in the industry. By focusing on sustainability, we ensure that our solutions not only meet the highest quality standards but also contribute to a healthier planet.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A (KAY): In the water industry, we're seeing several key themes driving innovation and the adoption of new technologies. One major trend is the focus on the circular economy and sustainable resource use. This means developing products that are not only long-lasting and reusable but also reduce waste and enable the reuse of water. Our ceramic flat membranes meet all of these criteria, and more.

Another significant trend is the increasing awareness of plastic waste and its impact on the ecosystem. The industry is actively developing strategies to mitigate this issue, including reducing reliance on single-use plastics. We're also addressing priority pollutants in our water sources, such as pesticides, pharmaceuticals, PFAS, and endocrine disruptors. Advanced filtration processes and treatment technologies are being developed to effectively remove these contaminants.

Additionally, there's a shift in investment strategies from short-sighted, lowest CAPEX investments with operational limitations to more prudent long-term assessments that optimize for Total Cost of Ownership (TCO). This approach promotes more sustainable and efficient water management solutions.

Looking ahead, I believe the water industry will continue to evolve with a stronger emphasis on sustainability, advanced technologies, and holistic management approaches. Innovations in filtration, digital water management, and renewable energy integration will be crucial in addressing global water challenges and ensuring the efficient use of our precious resources.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A (JULIUS): Certainly. Our team, in cooperation with the lead EPC Enviro Control, is installing a prestigious plant in Surat, India. This project involves upgrading an existing drinking water plant, increasing its capacity from 50MLD to 160MLD by replacing old gravity media sand filters with advanced ceramic flat membrane technology, and thus enabling a higher water capacity for the surrounding population.

Additionally, we have upgraded several industrial Membrane BioReactors (MBRs) and tertiary treatment plants across India. In these projects, we replaced traditional polymeric membranes with CERAFILTEC. This not only reduces plastic waste but also incorporates a

more reliable and sustainable method of water reuse, addressing both water scarcity and environmental sustainability.

These initiatives highlight our commitment to providing sustainable water management solutions and combating water scarcity in India through innovative technology and strategic partnerships.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A (JULIUS): In my view, the best investment opportunities in India's water sector lie in water reuse from municipal sewage for industrial process use, particularly in industries with high growth and significant water needs. Specifically, sectors such as food and beverage (F&B) and oil exploration and refining, and automotive have substantial potential for growth and development.

Additionally, rapid urbanization is driving the demand for improved urban water supply and sanitation infrastructure. Investments are needed to upgrade and expand existing systems to ensure reliable access to clean water and effective wastewater management.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A (KAY): One notable innovation is the development of longer-lasting and reusable solutions, such as CERAFILTEC's ceramic filtration technology. These solutions reduce the need for frequent replacements, minimize waste, and enhance the overall reliability of water treatment processes. Another significant trend is the integration of artificial intelligence (AI) and digital technologies in the water sector. Digitizing water management allows for real-time monitoring and data analytics, enabling more efficient use of each drop of water from the source to the end user. These advancements help optimize water usage, detect leaks, and ensure the effective reuse of water, ultimately contributing to greater sustainability in water management practices.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A (KAY): Digitalization and data-driven strategies can significantly enhance water management in India. Integrating IoT sensors, AI, and data analytics allows for real-

time monitoring and predictive insights, leading to efficient resource allocation, early leak detection, and optimized water distribution. This improves operational efficiency, reduces costs, and enhances service delivery.

In filtration, smart systems with sensors and analytics can monitor filter performance in real-time, enabling predictive maintenance and optimizing filtration processes. This extends filter lifespan, improves water quality, and reduces energy consumption, driving sustainability and efficiency in water management.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A (JULIUS): Balancing these competing demands is indeed challenging, especially given India's rapidly growing population and increasing water needs across all sectors. While it's difficult to significantly change the demand side, we can make substantial strides by focusing on two key areas.

First, maximizing water reuse is crucial. By implementing advanced water reuse technologies, we can recycle and reuse water specifically across industrial and domestic sectors. This approach helps in making the most of our existing water resources.

Second, minimizing pollution and contamination of our water sources is essential. We need stringent regulations and innovative treatment solutions to reduce pollution and protect our available clean water. By focusing on these two strategies—maximizing reuse and minimizing contamination—we can better manage the competing demands of different water users and ensure sustainable water management for the future.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A (JULIUS): We could look at Singapore's digital water treatment systems and Japan's potable water technologies. South Korea's distribution efficiency strategies might also be valuable. For municipal infrastructure, the UAE's investments offer interesting insights. To adapt these, we might focus on cost-effective solutions for our diverse settings. Exploring public-private partnerships and investing in our water professionals could help. The key is applying these global practices in ways that fit our local needs and resources.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A (KAY): We will see more Build-Operate-Transfer (BOT) & HAM (Hybrid Annuity Model) projects focusing on long-lasting, cost-effective solutions. The adoption of digital technologies will enhance real-time monitoring and efficiency. Stricter drinking water regulations and discharge limits will drive the need for advanced treatment and membrane solutions, ensuring higher water quality and sustainability.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: A (JULIUS): Certainly. Our team, in cooperation with the lead EPC Enviro Control, is installing a prestigious plant in Surat, India. This project involves upgrading an existing drinking water plant, increasing its capacity from 50MLD to 160MLD by replacing old gravity media sand filters with advanced ceramic flat membrane technology, and thus enabling a higher water capacity for the surrounding population.

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These initiatives highlight our commitment to providing sustainable water management solutions and combating water scarcity in India through innovative technology and strategic partnerships.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A (JULIUS): To ensure sustainable water management, it might be beneficial for all entities to adopt a stewardship mindset, treating water as a precious resource. The government could consider incentivizing and embracing innovative technologies to create a supportive regulatory environment. The private sector, through public-private partnerships, might focus on developing and deploying

advanced water treatment systems. Civil society could play a crucial role in raising awareness and promoting responsible water use.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A (KAY): We find the most exciting innovations, unsurprisingly, enabled through ceramic membranes. But, of course, we might be a little biased!

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A (JULIUS): "The Alchemist" by Paulo Coelho. It contains

important lessons for life and business. It highlights the importance of listening to one's heart and following one's dreams, and that the journey itself is as important as the destination.

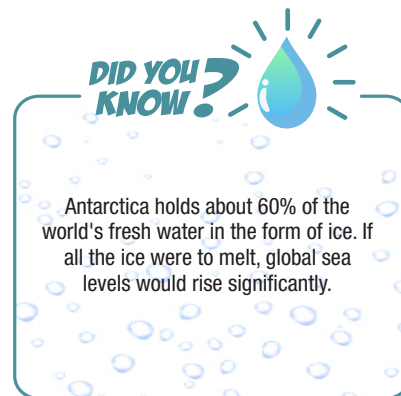
(KAY): Founder and CEO of BlueTech Research Paul O'Callaghan's PhD thesis, Dynamics of Water Innovation: Insights into the Rate of Adoption, Diffusion and Success of Emerging Water Technologies Globally. An essential read for anyone in the water sector.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A (JULIUS): Keep up the good work. EverythingAboutWater is a respected, well-read publication, and we look forward to reading each issue.

Q: Lastly, how can our audience stay informed about your company's latest developments and initiatives?

A (JULIUS): Follow us on LinkedIn. Just search for CERAFILTEC and hit follow; and of course visit us at www.CERAFILTEC.com



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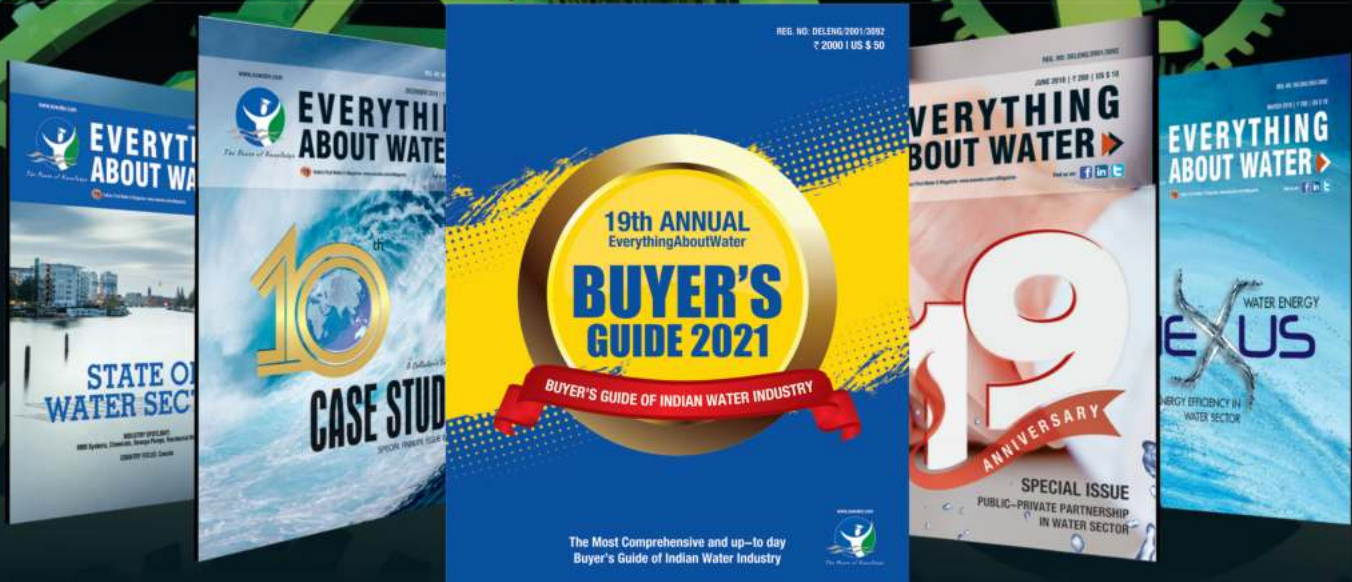
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INTERVIEW WITH Vikas Brahmavar

Co-founder,
Boson Whitewater

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Boson whitewater was born purely out of a passion to create a sustainable water infrastructure for the cities of our country. I (Vikas Brahmavar) used to live in London prior to moving back to India in 2008. Almost everyday during my working days in London, I would walk to the Tower Bridge for lunch. I was surprised to notice that there was absolutely no smell emanating from the River Thames. It was a stark contrast to some of our lakes in Bengaluru. At the back of my mind, I always had this urge to come back to the country and do something in and around water infrastructure.

I decided to move back to Bengaluru and work towards creating a sustainable wastewater infrastructure for our cities. Our mission at Boson White water is to create water abundance in our cities by recovering clean water from wastewater.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the

water industry evolving over the next 5-10 years?

A: The latest innovations in wastewater treatment focuses on enhancing the efficiency of existing technologies to improve both cost and water quality. Among these advancements are graphene-based materials, which, despite their high potential for filtering pollutants in sewage treatment plants, remain expensive and thus not widely adopted. Multi-walled carbon nanotubes (MCNT) are another promising material, offering improved durability and performance when used in water filtration systems. MCNT coatings on membranes significantly reduce degradation, resulting in less frequent and more cost-effective replacements. Forward Osmosis (FO) is being promoted by several major companies as an energy-efficient alternative to traditional reverse osmosis (RO). FO utilizes natural osmotic pressure to draw water through a semipermeable membrane, but its high initial costs currently restrict widespread use. These advancements collectively aim to revolutionize water treatment by making it more efficient and cost-effective.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: We have taken a number of steps to not only encourage more residential communities and industries to adopt our solution but also to build awareness about the need for water recycling and how it can lead to better water infrastructure. We work closely with local municipalities to share suggestions and implement solutions that can help improve water infrastructure in our cities. Additionally, we also associate with NGOs to implement clean water initiatives in villages across Karnataka.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A: The current investments which are happening are generally in terms of automation of the existing core technologies. For eg. There's a core technology of SGP and there are companies who are working on improving the form factor, meaning improving the efficiency of the system, improving the footprint of the system and things like that. All the current investments in the water sector is going towards efficiency improvement in core technology. The problem with efficiency is the investment doesn't have VC sized returns. So, because we are just improving the

efficiency, if the operating cost is say 3 paisa per liter, it is going down to 1.5 to 2 paisa per liter. Still, it doesn't give VC sized returns. What I feel the investment should go in is the real life implementation of projects, where it's not just efficiency improvement but the value add in and the reuse of water. So, if the reuse of water is replacing the fresh water reuse, then it adds commercial benefit and then the technology or the investment done on technology makes good return. So I think the investment should go on actual real world reuse of water which replaces the fresh water requirement.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: Covered in Q2

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Without knowing the volume of water available, we won't know how to address the scarcity. Without knowing the scarcity factor meaning what's the actual scarcity, is it the scarcity for a day, is it the scarcity for a month, so without knowing the volume available it becomes difficult to address. Digitization is the way forward to know that we have scarcity, to know that we have a problem, we need digitization. In terms of effectively managing the demand, developed countries have always been managing the demand by managing the wastewater going out to the city. Our infrastructure also should be looking at managing measuring the volume of water going out of the city as wastewater, that would be the primary digitization should happen in the volume going out of the city. Also, digitization in terms of consumption so that no one mindlessly consumes water. We have to monitor the water volume used for various applications, predominantly for the purpose of preventing leakages in the system, leakages in the line. So to summarize, digitization for incoming water and digitization for the outgoing waste water will lead to effectively managing the demand.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: Singapore's water management model offers valuable lessons, with 40% of its water needs met through recycled wastewater. The National Water Agency, PUB, efficiently collects and treats all sewage, transforming it into clean, high-quality water. In contrast, India's urban water

management relies heavily on rainfall, measuring dam levels to plan water distribution. However, erratic rainfall makes this approach unreliable. Many advanced countries adopt a model similar to Singapore, focusing on the volume of water exiting the city. For example, an Indian city with 20 million residents uses about 4 billion liters of water daily, of which at least 3 billion liters can be recycled. This recycled water can be used for household purposes, central air conditioning in commercial buildings, and even drinking. Currently, only 0.4 billion liters are reused, with the remainder contaminating lakes and rivers. Adopting a recycling-based model could significantly enhance India's water management efficiency.

Managing water meaning is different from managing a crisis, managing water scarcity. Managing water should happen even when there's a good amount of rain. Accessing and measuring the volume of rain which the city has gotten, things like that. Large reservoirs and things like that to store rainwater, those are the ways to manage water. Considering what other cities are doing, all developed countries, cities of the world, they look at wastewater as an important resource to manage the demand during the crisis. When they start from wastewater as a source, then the demand gets easily managed. When they start from only the dependency on the rain water, then there is always crisis management which is necessary and not demand management, meaning it is always crisis. So, from developed countries we should learn the methods of using wastewater effectively back into the same cycle, that's something we should learn from other cities.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: Coming to the next five to ten years, what I see is the core technologies will mature faster meaning the core technology, if you see the membrane, membrane has always been the technology has been ultra filtration, nanofiltration and RO membranes, reverse osmosis membranes. Now there are special membranes which are coated membranes which are available in the market, so there will be maturity skin in the membrane development. There's almost all other special membranes which are low power membranes like forward osmosis instead of reverse osmosis, there are FO membranes which are coming in the market, there'll be maturity in such filtration. There will also be maturity in biosciences where specialized bacteria is developed to digest sewage and things like that. There will also be biochemistry work development which will happen on the core technology side. In the next immediate one or two years, I only see efficiency improvement but core technologies will

start working. Graphing based treatment, carbon nanotubes based treatment, all will mature faster than it did in the last decade. Single walled carbon nanotubes, multi walled carbon nanotubes all will come into the picture soon. In terms of policy changes, as a country we only see policy changes during a crisis. This year during the crisis there were few policy changes which happened in Bangalore and I see a lot of policy changes quickly happening because of the government's interest in the water sector. Lots of policy changes are in progress. In terms of overall growth, we will see significant growth in the water industry. For the reason that, there is heavy demand and need which is happening in the segment meaning this year we were supposed to get a good amount of rain but comparatively the rains are lower even. So all the urban cities will face problems in terms of scarcity, in terms of water management as well. So, there will be a good growth, 8-10% growth at least every year in the water sector but it's going to be gradual and slow.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: One of the CSR projects we were involved in created quite a significant impact. We associated with SGBS Unnati Foundation to install water ATMs in the remote parts of Karnataka. The projects have been funded by ExxonMobil and Broadridge under their CSR initiative. Till date, 10 water ATMs have been installed in Malur and Doddaballapur villages on the outskirts of Bengaluru and over 1500+ families now have access to clean drinking water. "At Boson Whitewater, our overarching goal is to use our technology to create easy access to clean water. We look for opportunities like this that allows us to make a huge difference to communities that find it difficult to access clean water."

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: Anything related to social entrepreneurship, water, air, power, all these have to be community driven, government driven, private, all these puzzles have to work together to solve it. Government has to have an intermediate front for the startups, for the water industry because it's a long procedure for the startup or an industry to interact with the government directly. Agencies like ASCII, Well Labs, they are intermediate NGO category agencies which help startups interact with the government in terms of policy and things like that. It has to be all together government, private and civil society. When we talk about civil society, if you see Bangalore, we work with

Bangalore Apartment Federation, so these are communities which are there in each of the cities, which have to come forward working with the government, with the private sector to solve water sustainability. I see it really happening well here in Bangalore and slowly starting to happen in Pune. But we're a long way to go for civil society to get involved in solving the cities problems. However, government policies are good now, and are improving to help companies like ours to move forward. It can grow, it can be much better.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: Startups focused on addressing climate change can drive substantial positive change. Numerous water

startups have developed innovative solutions to tackle water scarcity, including water metering and recycling technologies. These promising solutions are crucial, and the more such initiatives we have, the better it is for our planet.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: My favorite books are Andrew Carnegie books and Dale Carnegie books. Mostly, they are self help books. Atomic Habits, I read that recently it's a good book. In terms of water, let there be water, that's a good book. All self help books, related to that, those are the books. In terms of movies, in terms of English movies, all the old ones, I like the movie CastAway. I like all the Jack Reacher movies and Tom Cruise movies, Mission Impossible, all those kinds of movies. In terms of recent Hindi movies, I like all the action

movies like Jailer, Leo, etc

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: Everything About Water is one among the few publications that are exclusively focused on Water and water infrastructure in our country. Continue the good work and spread the word about companies that are doing groundbreaking work in the field of water.



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INTERVIEW WITH SANJAY BAHL

Chief Executive Officer,
SUPER WELD

Q: As an industry leader, what robust strategies can be implemented to ensure ongoing compliance of wastewater systems with both existing and upcoming regulatory standards, fostering sustainable and responsible operations?

A: In my opinion the following 5 step approach also known as the RITEC must be adopted
RITEC stands for Regular monitoring of key parameters, Investing in latest Technologies, Training employees regularly , Engaging with pollution control authorities and Communicating with all stakeholders on ongoing basis
We at Superweld encourage and educate our customers to follow the above approaches and be compliant at all times

Q: In your experience, how do you balance the economic considerations of industrial water usage with environmental sustainability, and what innovative approaches have you employed to minimize water consumption and optimize reuse?

A: Economies that can be gained with water saving and reuse are well understood in the industry and we at Superweld develop innovative wastewater treatment products and techniques

1. We have developed technologies to make urinals

water free and odor free

1. We have developed products to make STPS and ETPs perform better for example a 5-star hotel after using our products has been able to recycle 85% more water than before
2. We also guide our customers on the importance of optimization of their existing process whether it be a Hotel, a School or process industry like a textile mill or paper mill.
3. And last but not the least We also ask our customers to take early initiatives in “educating the workforce” whether it be YouTube videos or reading magazines or attending webinars, EXPOs, the more the exposure the more easier will it be to adopt new water saving technology .

Q: In the dynamic field of biological wastewater treatment, what proactive measures can professionals take to stay abreast of the latest technological advancements and innovations, promoting continuous improvement in treatment processes?

A: That's a very interesting question and so is the answer
Firstly the owner , manager ,or a EHS head must refrain from a Overly cautions , conservative mindset. Only when

we develop a risk taking ability and have a will to challenge the status quo New ideas and new technology can come into our doors .you will

a. stay informed to latest news, regulations , standards
I keep visiting various wastewater treatment facilities and sometimes it surprises me that still many wastewaters professionals use Cowdung , UREA and DAP as a microbial sources where as I think we have come a far way from those conventional practices

When the higher ups at an organization are open to change, b)they network more , c) do inhouse RnD , e) they invite companies to do pilot projects, demonstrations etc and this is how successful companies have adopted high end technologies like Biocultures, IOT sensors, sensor-based energy controllers, MBRs instead of clarifiers etc..

Q: Delving into financial aspects, what are the primary factors that influence the overall operating costs of a wastewater treatment plant, and what optimization approaches can be adopted to enhance operational efficiency?

A: Primarily Major cost centres of a wastewater plant are factors like energy consumption, Chemical consumption, salaries and expenses of staff, Volumes of water being treated, Technology bieng used , but these costs can only

be optimized if the plant is designed well ,and operate with a systems approach ,

I would like to explain this with a real life scenario

There is a Municipal wastewater treatment plants know to us that is struggling to keep discharge levels within legal limits due to fluctuating incoming water volumes. This challenge forces them to spend lakhs of rupees daily on chemicals to adjust treatment processes constantly.

Now Here designing a larger collection tank for incoming wastewater could be a solution. This tank would act as a buffer, smoothing out fluctuations in water flow. With a steadier flow, the plant wouldn't need to adjust chemical use as frequently, potentially leading to significant cost savings.

Q: Exploring workforce management, what proven strategies can be employed to reduce labour costs in wastewater treatment plants without compromising operational effectiveness and employee well-being?

A: Consider this analogy , A wastewater plant is the battlefield where a war against wastewater is to be won. The labors, operators, technicians, engineers are our armed men

- They should must be fit and stay fit so their diet and workload must be monitored, they must know to how to help each other, so they must be well trained (regular training) on their jobs and cross-trained on indirect jobs,
- We should have the latest smart tools to measure daily parameters
- Software to automate repetitive tasks like sample collection, data entry, and equipment monitoring are need of the day.
- Well-laid written and pasted SOPs, Videos of how to troubleshoot must be available in internal portals, google drives etc..
- I think if the above is done regularly we can get impressive results .

Q: Given the increasing concerns about water scarcity, how do you prioritize water conservation initiatives within industrial operations, and what role do water recycling and circular economy principles play in your approach?

A: Yes water conservation begins with a water audit

A water audit report gives us details as trivial as employee awareness, leakage points, faulty pipelines as well as current technology and current design , process flow etc.

Once the report is made , a water consultant must be engaged to plug the gaps , and findout best ways for water resource usage embracing circular economy principals and

making necessary changes in the process where necessary .

I remember our visit to a kraft paper mill recently ended up in the installation of 2 DAF dissolved air floatation systems, these are fabricated machines to recover pulp and impurities in water, when originally the owners were skeptical of installing even one DAF system.

Q: In the context of climate change, how do you incorporate the management of industrial water systems to mitigate potential disruptions and adapt to changing hydrological conditions?

A: Industries can have become smart and efficient in the water is used, be it rainwater harvesting, irrigation of their factory premissis , utilizing water for industrial process, they should maximize water reuse .

Water is just like a TShirt , you don't throw it , when it gets dirty, you clean it and wear it again .

Similary if industries embrace this water reuse principle , they will be less dependent on outside events, and they will conserve every bit of water.

Climate change seems to big to stop , but we can do our bit

Q: Highlighting the crucial role of operator education, how does fostering awareness among wastewater treatment plant operators about cutting-edge technologies contribute to effective asset management, and what initiatives can be enacted to elevate operator knowledge?

A: My friends are wastewater engineers and sometimes we joke about what job role did you write in your matrimonial profile (laughs..) , because it is the hardest part for a wastewater engineer to describe the daily work they do .

They are acting chemists, plumbers, mechanical engineers, physicists, biologist at the same time.

- I feel in this industry experience must be rewarded more ,
- consultants who have worked on critical projects must be welcomed regularly for seminars , mentorships
- then there is immense knowledge in magazines like yours , on blogs, on youtube- we also run a channel by the name of Superweld Ecosolutions .
- Encouragement in terms of giving travel compensation for visiting events, expos must be done.

Q: Looking towards the future, what opportunities and

challenges do you foresee in the Indian wastewater treatment market, and what strategic measures can be taken to navigate and capitalize on these dynamics for sustainable growth?

A: That a very good question indeed ,

In India there is growing demand for clean water and for the infrastructure to treat water .

Governments are playing their role , but much more is needed. We need more schemes, more budget allocation for wastewater plants, we also drives for increasing O& M efficiency of the existing infrastructure

More stringent Pollution enforcement is required and

Giving away water for free must be stopped immediately .

Having said that I also see a revolution brewing up in the Indian industry .

In India they veterans and industry owners are still conservative in spending money on wastewater treatment infrastructure but at the same time we have a many young entrepreneurs who are ready to take risks and develop new technology and products for the industry - this approach fosters the development of innovative products and techniques which have to perform in a tighter budget

Our products like SUPER4 24 , OXYSUPER are by products of a similar brew

And so I am very bullish about the Indian wastewater market , I think we (our india wastewater industry) will set examples for world at large

Q: Lastly, What endeavours has your organization undertaken as part of its Corporate Social Responsibility initiatives to contribute positively to society?

A: We're a growing company with a focus on making it easy to treat complex wastewater ,

but we doing our small bits , like all washrooms at our office facility are waterless and use biocleaners, We keep our office cool by having a number of inhouse plants, We reuse water wherever possible, I think our biggest CSR is making products and spreading awareness about our products which can treat complex wastewater easily

Be it oil and grease digestion , ETPs , STPs provement, we are working with a range of industries like Paper, pharma , textile and so on We say that

WeAreChangingTheWayIndstryTreatsWasterwaterTM



INTERVIEW WITH Rajul Parikh

Co-founder,
Alfaa UV

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Alfaa UV's mission is to offer UV technology as a sustainable, environment friendly, non-chemical alternative for water & wastewater disinfection. Our vision is to see a planet where precious water resources are safeguarded, and reuse of safely treated water keeps water availability in balance for the needs of a growing world population.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: Water quality and water scarcity will continue to be the leading drivers for innovations in the water and wastewater treatment industry over the coming 5-10 years.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: Alfaa UV has pioneered the cause of wastewater disinfection in India and over the past 2 decades has put up thousands of UV installations in wastewater plants, both at decentralised and municipal levels, thereby reducing or replacing completely the need for chlorine, the traditionally used alternative, which is harmful to the environment and aquatic life. Wastewater treated with UV in the tertiary stage makes safe reuse possible and has resulted in huge savings of fresh water for non-potable purposes.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: Key technologies improving water management efficiency and sustainability include digital solutions like AI, IoT sensors, and advanced meters for controlling water quality and quantity and managing assets remotely. Innovations in wastewater processing, such as advanced oxidation processes and biological treatments, enhance water recovery and reuse while reducing pollutants. Novel membrane technologies, like nanocomposite membranes, improve treatment efficiency and reduce energy consumption. Advanced water quality monitoring using

remote sensing and machine learning allows for real-time data and early contaminant detection. Water capture and reuse systems, such as greywater treatment and rainwater harvesting, are crucial for conserving water resources in urban and agricultural settings.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Digitalization and data-driven strategies can greatly benefit India's water industry by improving efficiency, enhancing decision-making, supporting sustainability, and facilitating collaboration. AI, IoT sensors, and real-time data analytics optimize water distribution, detect leaks, and manage infrastructure more effectively. Data-driven insights allow for better planning and resource allocation, with predictive analytics forecasting water demand and supply for informed decisions. Digital technologies help monitor and manage water resources sustainably, promoting water reuse and reducing wastage. Collaborative platforms integrating data from various sources improve coordination among government bodies, the private sector, and civil society, fostering collective efforts for sustainable water management.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: By reusing water to a much greater extent. The potential in India for reuse is huge with 27000 million litres per day MLD of wastewater left both untreated and unused. If even 14000 MLD can be successfully reused, this would help in balancing demand across various sectors.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: India can learn valuable lessons from other countries' water management successes. The Netherlands and Israel have effectively integrated advanced technologies, which India can adapt to local conditions for better water efficiency and sustainability. Singapore's strong regulatory frameworks highlight the importance of policies that promote water conservation, which India can emulate. Public-private partnerships, as seen in the USA, can enhance infrastructure and services, suggesting that India should

foster similar collaborations. Australia's success with community engagement shows that involving local communities and implementing educational programs and incentives can improve water management and sustainability in India.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: Collaboration among the government, private sector, and civil society in India can ensure sustainable water management through joint initiatives, policy development, capacity building, and community engagement. Joint projects involving all stakeholders, such as those modeled by the 2030 Water Resources Group (WRG), promote comprehensive management. Policies encouraging sustainable practices and investments, along with incentives for water-efficient technologies, can align sector efforts. Training and education programs, supported by government and private sector partnerships, enhance the necessary skills and knowledge for effective management. Active participation from civil society, through public awareness

campaigns and community-based projects, can lead to more sustainable practices. Tailoring these strategies to India's specific needs can help secure water resources for future generations.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: 7 Habits of Highly Successful People by Stephen Covey remains my favourite. A few select shlokas from the Bhagavat Gita keep me grounded to reality.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: The subject of water is going to be as hot as fire. And to put out this fire, we will need water. Keep advocating conservation of this precious resource.

Q: Lastly, how can our audience stay informed about your company's latest developments and initiatives?

A: Through our website, articles, press releases, blogs and of course through focussed resources such as Everything About Water.



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INTERVIEW WITH Abdul Rahman Mohammed

CEO,
Sahara Industry

Q: Could you share your company's vision and mission for water management and sustainability? How does your company stand out in the competitive landscape of the water industry?

A: At Sahara Industry and our parent company, AACP India, our vision is to lead the way in sustainable water management, empowering communities and industries with safe and clean water solutions. We are committed to addressing the water crisis through innovative treatment technologies and responsible resource utilization.

Our mission is to provide cutting-edge water and wastewater treatment systems that deliver exceptional quality, reliability, and value, while fostering a culture of environmental stewardship that respects and protects natural ecosystems. We strive to create lasting value for our diverse clientele by offering innovative, reliable, and energy-efficient products. Through continuous research and innovation, we tackle emerging water challenges with uncompromising quality and commitment. All our products adhere to rigorous international standards, and we provide comprehensive after-sales support. At

Sahara Industry, we are not just treating water – we are securing a more sustainable and prosperous future for all.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: We recognize that clean, reliable water is the lifeblood of society, industry, and economic growth. Our pioneering solutions leverage smart water technologies to aid sustainable resource management by optimizing water use, minimizing waste, and promoting a circular water economy. By providing sustainable water solutions, we aim to enhance public health and sanitation, support industrial productivity and expansion, preserve ecosystems and biodiversity, mitigate the impacts of climate change on water resources, and foster sustainable urban development.

Our product design and development system integrates advanced technology into our core engineering principles. Our expert team of engineers, designers, and manufacturing specialists works diligently to address current and emerging challenges

related to water quality, contamination, scarcity, and sustainability. Most of our products are ANSI/NSF certified, support in optimizing water usage, detecting leaks, and requiring minimal maintenance over extended periods.

We focus on designing water treatment systems that minimize energy consumption without compromising performance, thereby reducing both operational costs and environmental impact. We develop targeted solutions for emerging contaminants such as pharmaceuticals, microplastics, and PFAS, and we maintain a robust R&D program to stay at the forefront of water treatment technology, constantly refining and updating our product offerings.

“OUR COMPANY IS DEDICATED TO SHAPING A WATER-SECURE FUTURE BY INTEGRATING ADVANCED TECHNOLOGIES WITH ENVIRONMENTALLY CONSCIOUS PRACTICES.”



Q: What are the current trends and major innovations in the water industry? How do you foresee the water industry evolving over the next 5 to 10 years?

A: With increasing urbanization and water demand, the per capita water availability in India has declined by almost 20% in the last two decades and is likely to decline by another 20% by 2050, making it a water-scarce country. With rapid urbanisation, the country is also facing challenges in terms of water and sanitation. As populations grow, wastewater levels are rising, and with conditions of wastewater treatment and groundwater contamination varying from city to city, some are struggling to cope with these issues.

Innovation and technology will play a bigger role in increasing water sector's resilience and sustainability. Membrane filtration, ultraviolet (UV) disinfection, and advanced oxidation processes (AOPs) are improving water quality. Smart water management systems using IoT and AI are optimizing water distribution, leak detection, and consumption monitoring. Decentralized water treatment systems are gaining traction, providing localized and efficient solutions. Desalination technologies are becoming more energy-efficient, addressing water scarcity in arid regions. Additionally, green infrastructure, like rain gardens and permeable pavements, is being integrated into urban planning to manage storm water naturally.

Over the next 5-10 years, the water industry is expected to see significant growth in these areas. Digital transformation will continue, with more widespread adoption of smart water networks and predictive analytics, improving operational efficiency and reducing water loss. Climate change will drive the need for resilient water systems, leading to increased investment in adaptive infrastructure and nature-based solutions.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: The water industry is undergoing a significant transformation, driven by key trends in smart water management and distribution. IoT, AI, and data analytics are at the forefront, enabling real-time monitoring and predictive maintenance of water infrastructure. Digital twin technology offers unprecedented insights for optimization and decision-making. Advanced Metering Infrastructure (AMI) enhances billing accuracy, leak detection, and water conservation efforts.

Advanced treatment technologies make wastewater reclamation and reuse for even potable purposes viable and cost-effective. Policies and regulations will be increasingly shaped by big data analytics and real-time monitoring. Emerging technologies like Blockchain for water trading, nanotechnology for purification, and biomimicry for complex challenges will be in demand. AI and automation technologies will support autonomous water management systems, improving efficiency and sustainability across entire water networks.

"THROUGH OUR HOLISTIC APPROACH TO WATER TREATMENT AND MANAGEMENT – MINIMIZING DISCHARGE, IMPROVING QUALITY, AND PROMOTING AWARENESS – SAHARA INDUSTRY IS PLAYING A CRUCIAL ROLE IN ADDRESSING ONE OF THE MOST PRESSING ENVIRONMENTAL CHALLENGES OF OUR TIME."

Q: What lessons can India learn from other countries that have successfully addressed water issues, and how can these be adapted to the Indian context?

A: India can learn valuable lessons from countries that have successfully addressed their water issues. Some of the relevant examples include:

Integrated Water Management: Australia's comprehensive approach to water management, involving policies that integrate water conservation, allocation, and quality, can guide India in creating a cohesive water management framework.

Advanced Water Recycling: Singapore's extensive water recycling program as their NEWater, clearly demonstrate to effectively reuse wastewater for potable purposes. India can adapt these techniques in urban areas to address water scarcity.

Desalination and Irrigation: Israel's advanced desalination technologies provide a sustainable solution for water-scarce regions. Implementing similar systems along India's vast coastline can augment water supply. Israel's adoption of drip irrigation and water recycling for agriculture has maximized water efficiency. India can promote similar technologies, especially in water-scarce regions, to improve agricultural productivity and conserve water.

Technological Innovations: The Netherlands' use of cutting-edge technology for flood control and water management can inspire India to adopt innovative solutions for managing its diverse water challenges.

Public Awareness Campaigns: California's efforts in raising public awareness about water conservation through campaigns and education have significantly sential for balancing



reduced water consumption. India can launch nationwide awareness programs to promote water-saving practices.

Community Engagement: Brazil's successful community-led water management initiatives highlight the importance of involving local communities in water conservation efforts. India can empower local communities to manage and protect water resources.

By learning from these examples and adapting them to local conditions, India can enhance its water management practices, ensuring efficient use and equitable distribution to address its unique water challenges effectively.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: Balancing the needs of agricultural, industrial, and domestic water users is challenging yet manageable through insights, planning and strategies. Implementing integrated water resources management ensures that water is allocated and managed holistically, considering the needs of all sectors. Establishing fair water pricing and incentives for conservation can encourage efficient use across all sectors. Providing subsidies for implementing water-saving technologies can further promote responsible usage.

Technological innovations play a crucial role in this balance. Adopting advanced irrigation techniques, such as drip irrigation and precision farming, can significantly reduce agricultural water use. Similarly, industries can implement water-efficient processes and recycling and reuse systems to minimize their water footprint. Developing and enforcing regulatory frameworks that govern water use and quality is a competing demands. These regulations should promote equitable water distribution and prevent over-extraction, ensuring that all sectors receive their fair share.

Engaging stakeholders from all sectors in water management decisions fosters cooperation and ensures that diverse needs are considered. Public-private partnerships can drive innovation and facilitate resource sharing. Utilizing data and monitoring

FAVOURITE BOOK: "A LONG WALK TO WATER" BY LINDA SUE PARK, A NOVEL THAT DEPICTS THE STORIES SURROUNDING WATER SCARCITY

FAVOURITE MOVIE: "PIPASA", A DOCUMENTARY ON INDIA'S WATER CRISIS

FAVOURITE HOLIDAY DESTINATION: MUNNAR IN KERALA, A HILL STATION TOWN WITH MESMERIZING NATURAL SURROUNDINGS

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COMPANY MOTTO: PURE SOLUTIONS FOR A SUSTAINABLE FUTURE

systems to track water usage and availability helps in making informed decisions and adjusting allocations as needed.

By combining these strategies, the competing demands of agricultural, industrial, and domestic water users can be managed in a sustainable and equitable manner.

Q: How can our audience stay informed about your company's latest developments and initiatives?

A: We encourage your audience to use a combination of these methods to stay fully informed about our latest

developments and initiatives in the water management sector. Our website is frequently updated with news, product highlights, and announcements about our latest technologies and solutions. Sign up for our newsletter to receive periodic updates directly in your inbox. This often includes exclusive content and early announcements.

Connecting with us on social media platforms like LinkedIn, Twitter, Instagram, and Facebook will give real-time updates, industry insights, and engagement opportunities. We often participate in water industry events and expositions where we showcase our latest innovations. Check our website or social media for announcements about our attendance at upcoming events. Create a Google Alert for our company name to receive notifications when we are featured in publications and news articles or other online content. For more specific inquiries, our customer support team can provide information about our latest products and services.

We highly appreciate the interest and engagement that help drive our commitment to innovation and excellence in providing top quality, affordable and sustainable water treatment solutions.

About the Author

Drawing from a background in marketing and finance, the enterprising young entrepreneur has adeptly steered the company towards becoming a leading manufacturer and supplier of cutting-edge, top-tier water and wastewater treatment solutions in India. Employing a fusion of contemporary business tactics, technological advancements, and visionary leadership, he has driven his group of companies to achieve extraordinary expansion, surpassing a turnover of INR 1200 million.





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INTERVIEW WITH Mohammed Naser Azeez

Managing Director,
Aquality Intelligent Solutions Pvt. Ltd.

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Our vision at Aquality Intelligent Solutions Pvt. Ltd. is to empower communities with safe, efficient, and eco-friendly solutions that enrich lives while preserving the planet for future generations. This vision drives our mission to be a leading force in fostering a cleaner, healthier, and more sustainable world through our expertise in water, air, energy, and technology.

At Aquality Intelligent Solutions, our core principles guide our business and innovation in the water industry. We commit to excellence in every aspect, from product development to customer service. Ethical integrity forms our foundation, upholding transparency, honesty, and accountability to build trust with clients, partners, and stakeholders. Innovation drives us to explore and implement cutting-edge technologies, delivering solutions that exceed expectations and set industry benchmarks.

Client-centricity is fundamental; we tailor solutions to

meet the unique needs of our diverse clientele, fostering long-term relationships. By adhering to these principles, Aquality Intelligent Solutions delivers superior solutions for water treatment, air purification, and renewable energy, thereby contributing to a more sustainable and efficient future.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: The water industry is currently experiencing a significant transformation, driven by a confluence of technological advancements, environmental challenges, and evolving needs. This evolution is characterized by several key trends and innovations that are reshaping the landscape of water management and distribution.

At the forefront of this change is the rapid digitalization of water systems. The implementation of IoT, AI, and machine learning technologies is enabling real-time monitoring and predictive maintenance of water infrastructure. Digital twin technology is providing unprecedented insights into system performance,

allowing for optimization and improved decision-making. Alongside this digital revolution, there's a growing emphasis on water reuse and recycling, with advanced treatment technologies making wastewater reclamation increasingly viable and cost-effective.

Looking forward to the next 5-10 years, the water industry is poised for even more intense changes. We can expect to see widespread adoption of AI and automation, with autonomous systems managing entire water networks. The concept of a circular water economy is likely to gain prominence, with closed-loop systems becoming the norm rather than the exception.

Emerging technologies like blockchain may find applications in water supply management, while nanotechnology breakthroughs could revolutionize

THE WATER INDUSTRY IS CURRENTLY UNDERGOING A SIGNIFICANT TRANSFORMATION, PROPELLED BY A CONFLUENCE OF TECHNOLOGICAL ADVANCEMENTS, PRESSING ENVIRONMENTAL CHALLENGES, AND EVOLVING SOCIETAL NEEDS.

water purification processes. We might also see increased adoption of biomimicry, with nature-inspired solutions addressing complex water management challenges. Climate resilience will undoubtedly be a major driver of innovation, as water experts seek adaptive strategies to cope with increasing environmental volatility.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: As a leading water treatment solution provider, AQUALITY has taken significant initiatives to combat water scarcity and promote sustainable water management through innovative solutions. Our approach focuses on two key aspects: minimizing water discharge and improving the quality of treated water to meet global standards.

To address water scarcity, the company has marketed advanced water treatment systems that significantly reduce water discharge. These systems employ cutting-edge technologies to maximize water recovery rates. In parallel with reducing water discharge, the company has made significant strides in improving the quality of treated water. Our advanced treatment processes incorporate multi-stage filtration, advanced oxidation, and ion exchange technologies to remove a wide range of contaminants, including emerging pollutants of concern like pharmaceuticals and microplastics.

To ensure consistent performance and compliance with water quality standards, AQUALITY has integrated real-time monitoring and control systems into the treatment solutions. These smart systems use sensors and data analytics to continuously optimize the treatment process, ensuring efficient operation and consistent water quality. The company's commitment to sustainable water management extends beyond technology development. We actively engage in knowledge sharing and capacity building, partnering with our domestic, commercial and industrial clients and other stakeholders to promote water conservation practices and raise awareness about the importance of water reuse.

By providing these advanced water treatment solutions, the company is making a significant contribution to India's efforts to combat water scarcity. Our technologies enable industries and communities to reduce their water footprint, conserve freshwater resources, and ensure a sustainable water supply for future generations.



Q: From your perspective, what are the most promising investment opportunities in India's water sector? Which specific areas do you believe offer the greatest potential for growth and advancement?

A: The water sector in India offers rich investment opportunities driven by population growth, rapid urbanization and industrialization, and increasing water scarcity. Key areas for investment and growth include advanced filtration technologies, desalination plants, and decentralized solutions for water treatment. The wastewater management and recycling solutions for municipal and industrial effluent treatment and reuse present substantial opportunities.

Investment in technology-based smart water infrastructure, including monitoring systems, advanced metering networks, and leak detection, is highly promising. Water loss management initiatives, such as pipeline rehabilitation, distribution network management, and pressure control systems, offer attractive investment prospects for improving efficiency and reducing non-revenue water (NRW).

Given that the agricultural sector in India consumes over

80% of fresh water, investments in precision irrigation systems and water-efficient farming techniques are crucial for achieving better sustainability.

Investors should consider India's regulatory landscape, regional water challenges, and the need for localized solutions. These investments align with national water management goals and sustainable development objectives, offering financial returns while enhancing the country's water security and sustainability. Technological innovation, policy reforms, and strategic investments are expected to drive transformative changes in India's water sector.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Leveraging digital technology and innovation is crucial for the water industry because it enables more efficient, sustainable, and resilient water management practices. Advanced technologies like AI and IoT enable real-time monitoring and predictive analytics, allowing for more efficient water use and distribution. Smart systems can detect leaks, predict maintenance needs, and extend the lifespan of aging water infrastructure, reducing costs and

"AQUALITY INTELLIGENT SOLUTIONS ENHANCES HUMAN LIFE AND COMMERCIAL PRODUCTION WITH INTEGRATED, INNOVATIVE, AND SUSTAINABLE SOLUTIONS IN WATER MANAGEMENT, AIR QUALITY IMPROVEMENT, RENEWABLE ENERGY, AND TECHNOLOGY. COMMITTED TO ENVIRONMENTAL STEWARDSHIP AND SOCIAL RESPONSIBILITY, WE AIM TO POSITIVELY IMPACT PRESENT AND FUTURE GENERATIONS."



FAVOURITE BOOK: THE ALCHEMIST

FAVOURITE MOVIE: “ALL THAT BREATHE”, A POWERFUL MESSAGE ON THE PERILS OF AIR POLLUTION

FAVOURITE HOLIDAY DESTINATION: MALDIVES, FOR ITS CRYSTAL-CLEAR WATER, CALM ENVIRONMENT, A TROPICAL PARADISE.

A PIECE OF ADVICE TO THE TEAM AT EVERYTHING ABOUT WATER: AIM TO LEAD IN DELIVERING VALUABLE WATER NEWS, INNOVATIVE TECHNOLOGIES, AND SOLUTIONS TO CREATE A MORE SUSTAINABLE WATER FUTURE.

COMPANY MOTTO: SUSTAINABLE INNOVATIONS RESHAPING WATER, AIR AND ENERGY MANAGEMENT.

water loss substantially. Advance sensors and treatment technologies ensure safer drinking water by detecting contaminants quickly and improving purification processes.

Modern technology helps in better adaption to climate change impacts, such as managing water scarcity through improved forecasting and smart allocation systems. Modern pumping and treatment technologies significantly reduce the energy consumption of water systems; bring much needed energy efficiency while also lowering operational costs and carbon footprints. Advanced data analytics provide real insights for better policy-making, investment planning, and operational strategies in water management. Innovations in water recycling and resource recovery from wastewater support the transition to a more sustainable, circular water economy.

Q: How can our audience stay informed about your company's latest developments and initiatives?

A: Aquality Intelligent Solutions is dedicated to enhancing the quality of human life and commercial production by providing integrated, innovative, and sustainable solutions in water management, air quality improvement, efficient renewable energy production, and technological intervention. Committed to

environmental stewardship and social responsibility, we aim to positively impact both present and future generations.

To stay updated on our latest developments and initiatives, we encourage your audience to frequently visit our official website, subscribing to our news and updates, and following us on social media. Our business insights and project details are regularly featured in industry magazines and other publications, showcasing our progress and commitment to social and environmental initiatives.

About the Author

A first-generation entrepreneur with a keen passion for innovation and a willingness to take risks, he founded the highly acclaimed Aquality Intelligent Solutions (formerly Aquality Water Solutions Pvt. Ltd.). His vision was to offer technologically advanced water treatment solutions to domestic, institutional, and industrial clients. Driven by a deep interest in providing clean drinking water facilities, he has made significant contributions to improving people's lives through unwavering commitment, technological innovations, and a focus on delivering excellence with quality.





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Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Aquaindica Techno Solutions Private Limited, is formed with the intent to provide customized, comprehensive, people centric, user friendly, solutions by adopting latest technologies in terms of water treatment, monitoring of water quality, minimize water loss, and proper control over entire water treatment process and distribution networks. Vision, Mission and Value Statement of our company are: -

Vision: To be a company that fulfils the aspiration of the customers for 24/7 water supply at the right quantity, right pressure, and right quality.

Mission: We provide Sustainable, Customized, Reliable, Innovative, Practical, and Thorough solutions in water, wastewater, irrigation & landscaping infrastructures by adopting emerging technologies.

Value statement: "Trustworthy and collaborative engagement with all stakeholders".

Urban water sector in India is under immense pressure due to the increasing population and rapid urbanization. The Government of India has launched the Atal Mission for

Rejuvenation and Urban Transformation program, AMRUT 2.0 which aims to make the cities 'water secured' by providing functional tap connections to all households for safe and reliable water to urban citizens. Also, Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water through individual household tap connections to all in rural India. There are challenges in view of water security both in rural and urban areas considering issues such as adequate quantity and required quality water supply to the citizens. Most of the water supply schemes provide intermittent supply and facing contamination issues, high Non-Revenue Water (NRW) and inequitable water supply.

We offer services in implementing 24/7 water supply projects including professionally managed long-term Operation and Maintenance contracts. Our innovative approach provides energy efficient and sustainable solutions for fully automated 24/7 water supply with direct feed network. As per the CPHEEO revised manual, residual pressure requirements have been changed and it is difficult to manage recommended residual pressure at critical points in the network with existing set up of ESR. We provide customised packaged booster pumping stations for average daily supply from 1 MLD to 10 MLD capacity with SCADA.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: Water utilities are mostly governed by the Government Departments as an essential service. Recently CPHEEO has revised guidelines through manual by adopting prudent engineering practices and technological development. Currently technological intervention in improving the water sector is all time high vis-à-vis its adaptation by the utilities is commendable. We can see innovations right from the treatment process, disinfection process, monitoring & control with the use of IoT, SCADA, use of GIS, and emerging technologies in leak detections, online water quality checks etc which will certainly improve the service delivery standard across the water sector in India in next 5-10 years.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: We believe that the utilities should focus on reducing non-revenue water on priority considering huge water losses (to the tune of 30 to 50 %). We promote and conduct Water and Energy Audit for the system including network

and pinpoint the areas with higher water/energy losses to tackle as per priorities. Use of advanced leak detection technologies, Zoning and DMA wise NRW management will be fruitful.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A: Augmentation of existing water treatment plants and old transmission-distribution network shall be the focus areas for investment in water sector. Upgradation by adopting emerging technologies for process monitoring & control will be beneficial such as modifications in treatment process considering all variations in source raw water quality and optimising use of chemicals in treatment, replacing old, inefficient pumping systems, proper selection of pre/post/booster disinfection systems considering decay studies and mitigating disinfection by products DBPs issues, use of IoT solutions, AML etc.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: When we talk about sustainability, we aim to focus on reducing waste, i.e. energy conservation, reducing non-revenue water, reuse of treated wastewater and use of renewable energy in water management. In these sectors, many technological solutions as discussed above are available.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Water Supply Systems being a service industry, have a wider scope for improvement in deliverables and adopting customer centric approach. Digitalization and data-driven solutions shall certainly enhance service quality and customers can be well aware of the utilities services, water quality, billing systems, interruption notices etc and they become a part of the system. Designing proper key performance indications for these services and publishing KPI targets and achievements will be beneficial. If central government devise some ranking criteria for water utilities, based on the service KPIs may trigger competition among utilities to improve services, just a thought to explore.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed

effectively?

A: I think with proper coordination among policy makers, water resources management departments, and utilities administration can overcome the challenges in meeting the water demand for agricultural, industrial and domestic use. Long term planning required to secure water resources as per area development and forecasted demand, decentralisation of development areas to avoid the stress on the available limited resources & infrastructure may need to be considered. Planning for drinking water network and treated wastewater network together and implementing interdependent projects hand-in-hand for new city areas will certainly help in reducing ultimate water requirement from source. Selecting crop pattern based on water availability may resolve the issue some extent.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: In Oman, they plan and develop drinking water network, sewer network and treated sewage effluent (TSE) network together and customer gets three connections same time. They charge for 70% of drinking water consumption for TSE irrespective of the use of TSE. Indirectly, they encourage to use TSE, which is tertiary treated, for non-potable/ gardening applications. As discussed above, proper planning is required to implement such interdependent projects for water and wastewater.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: As long as the Government and its implementing agencies are adaptive to the emerging technologies and innovative practices, in water, wastewater sectors, there is a huge scope for development in these areas over the decade. Water supply complying to drinking water quality requirements and effective collection of wastewaters and its reuse after proper treatment shall also reflect in reducing water borne diseases and improve community health.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: Currently, we are working on the Water-Energy Audits and Packaged Booster Pumping Stations for 24/7 direct feed network with SCADA.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: All stakeholders including government, private sector, civil society and individual customers have a major role to play in sustainable water management with limited water resources. One cannot work in isolation or make policy changes without considering the involvement of other stakeholders.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: Some of the promising areas for innovation could be new treatment chemicals, water treatment process, disinfectant, faster & robust online bacteriological testing, reliable & low-cost leak detection and pipe repair technics.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: One of my most favorite books is Bhagavad Gita ... Modern Reading and Scientific Study by Great Physicist C. Radhakrishnan. Among other personality development series books, my favorite authors are Stephen Covey, Robert Kiyosaki. I like Amol Palekar's simple & comedy movies a lot, like Choti Si Baat, Golmaal etc..

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: I appreciate the team of EverythingAboutWater for their untiring work in the field of water sector and providing the platform for connecting the industries and utilities for bringing continuous improvement. I wish EverythingAboutWater achieve greater heights and all the success in this endeavour.

Q: Lastly, how can our audience stay informed about your company's latest developments and initiatives?

A: Thank you very much and look forward to contributing through our services as a consultant, engineer, contractor, supplier, importer and exporter for customised and sustainable solutions. Please reach out to us via www.aquaindica.in or email to aquaindica.ts@gmail.com



INTERVIEW WITH Ashutosh Vadanagekar

Technical Director,
Amalgam Engineering

Q: We welcome, Amalgam Biotech, A Division of Amalgam Engineering Pune – on board for an interview. Our audiences & readers would like to know journey of organisation Amalgam

A: It is our privilege to give interview for your renowned magazine. Amalgam Biotech is a manufacturer of Bacterial bioculture, Industrial odour control solutions & cleaning solutions. Company is working in field of wastewater sector since 2010. I am delighted to highlight success story to all our audiences.

Q: Ok, now tell us something about products.... What are the products developed by the company?

A: There is product range as a 1. Bactaserve-bioculture, 2. Odoserve-odour control solution and 3. Nutriserve-process additives, 4. Cleanserve-industrial cleaning solutions and also, we are helping with customised products to our clients for their different problems

Q: What is Bactaserve ?

A: It is bioculture-specially formulated from naturally

occurring non-pathogenic, non-Genetically Modified Organisms, blend of bacterias. Those helps in biodegradation of the content of wastewater & wastewater can be treated in an environment friendly way.

Q: That's good. What are the applications of the Bactaserve?

A: Bactaserve has to be added in aeration tank, MBR, SBR, MBBR tanks. It finds applications in industries like Sugar, Dairy, Pharma, Textile, Paper & Pulp. We have product for oil & grease degradation in food grade industries and hotels also. This product is available in powder as well as 1 Kg Bar. FOG SR Bar will work at aerobic & anaerobic condition. Also STP of residential areas, hotels, hospitals can use to treat wastewater naturally.

Q: Is it environmentally safe to use ?

A: Its eco-friendly as even it can be used in composting, pond cleaning, Lake bioremediation & in aquaculture also.

Q: Definitely it will be more effective solution to

many industrial problems. How about its availability?

A: 1 Kg standy pouches available & can be sent anywhere in India or abroad.

Q: I believe there might be other players also in this space. So, how are you different than the others?

A: Our bacterial strains are pre-acclimatized cultures highly concentrated, which are industry specific for eg. Our dairy culture contains lactose & fats degrading bacteria which have been acclimatized to dairy waste water. Similarly our textile culture is acclimatized to dyes & pigments generated from denim, polyester, cotton, rayon industry. Also we have self-dissolving sachets for degrading kitchen waste, clogged drain pipes and also for flushing in toilets to degrade human fecal waste. It has a shelf life of 2 years.

Q: Its very useful application to clean environment & solve the industrial problems. Also please elaborate other product- Odoserve & its application?

A: Odoserve is liquid, blend of essential oils, a plant-

chemistry based organoleptic enzymatic proprietary compound, food grade surfactants & purified water, that removes the bad odour molecules completely. Odoserve converts unpleasant smell to non-odorous compounds.

Q: Which type of odour its removing?

A: Odoserve is used to remove Ammonical, fecal, fishy, putrifying, rotten food, nicotine, garbage, strongest chemicals, public toilets any type of bad smell. It's nontoxic and safe to use. Its slightly citrus/floral/mint odorous form. It is bio degradable in nature.

Q: It will be of great use and use. What is Nutriserve?

A: Nutriserve are having wide range of product utility. Oxy-Enhancer is a powder which quickly releases oxygen into the water stream. NutriServe BOD Enhancer is a formulation for artificially increasing the inherent BOD load in an organically starved waste water stream. Nutriserve Rapid oxidizer is formulation for decreasing malodour present in effluent, reduction in foul-fishy-fermented odour. Nutriserve probac aerobic & anaerobic is mixture of micronutrients as per required condition. N & P Enhancer is fulfilling the supplement need of Nitrogen & Phosphates.

Q: ok, What is a product cleanserve?

A: Cleanserve are industrial cleaning solutions including natural –organic bio enzymatic product for multi surface cleaner, toilet cleaner, urinal bars & Odour control solutions etc etc. Research & Development in the products going on continuously for improving the performances & applications

Q: Many products by Amalgam !! We will be happy, if you will share your contact details for our interested audience /readers

A: www.amalgambiotech.com is our website and also you can visit our office in Pune. Contact us for any requirement and we also provide site visit support, after sales technical support and troubleshooting. We have Technology tieups with KIIT for petrochemical waste degrading bacteria, CSIR-IHBT for cold region bacteria, BARC for rapid composting bacteria.

Q: That's great ! We are happy to listen about your products & eco-friendly solutions to Industries. For this if you have bagged prestigious awards. Please highlight if any...

A: We are proud recipient of

- Aqua Foundation Excellence Award 2017
- MCCIA Innovation & Entrepreneurship Award 2018
- CII product innovation in waste & water
- We are ISO certified company.

Also we are doing R & D and product improvisation. We have tested our products in renowned Laboratories with different studies and trials. Our products are heavy metals free, pesticide residue free, antibiotic residue free as analysed by different govt Labs.

Q: Amalgam team is very versatile...

A: We have chemical engineers, biotechnologists, biochemical experts, environmentalists, financials-marketing, Supply chain team and perfect administration for overall coordination !!!

Q: Your reach and services are in India?

A: We are providing our services to PAN India and also to other countries like Colombia, Canada, Nigeria, Saudi Arabia, Bangladesh, Philippines, Malaysia, Kuwait, Qatar, etc. We are supplying products, helping in commissioning, troubleshooting, extending the technical support through product trials till resolving the problems.

Q: It's a great work of organisation. Thank you for information. We would like to create more awareness about environment friendly product.

A: Thank you & I reciprocate the same. Thank you, this prestigious magazine team, for an interview opportunity!!

**Solutions
for Effective
ETP Troubleshooting&
Industrial
Odour Control
Solutions**





Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Vision: To lead the transformation of global water management through innovative automation solutions, ensuring sustainable and efficient use of resources for future generations.

Mission: At CIMCON, we are committed to revolutionizing water management by integrating advanced automation technologies. Our mission is to:

- **Innovative Automation:** Pioneering state-of-the-art, modular, and scalable products that set new standards in water management efficiency.
- **Cost-effectiveness:** Delivering groundbreaking, cost-effective solutions that reduce maintenance time and operational costs.
- **Technological Leadership:** Leveraging flexible wireless technology and continuous product upgrades to stay ahead of industry trends.
- **End-to-End Solutions:** Providing comprehensive turnkey project implementation, from hardware design to software configuration and integration.
- **Research & Development Excellence:** Maintaining robust in-house software and R&D teams with

cutting-edge infrastructure to drive continuous innovation.

- **Environmental Commitment:** Embedding strong social responsibility and environmentally-friendly practices into our operations, promoting sustainable water use.
- **Local Expertise:** Empowering local communities with dedicated sales resources and engineering expertise, ensuring tailored solutions that meet regional needs.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: 1.Improving Water Infrastructure:

- **Urban Water Supply and Sanitation:** Cities are growing, and there's a big need for better water supply systems and modern sanitation. Investing here can improve public health and quality of life.
- **Rural Water Supply:** There's a significant need to enhance water access in rural areas through various projects.

3.Water Treatment and Recycling:

- **Wastewater Treatment Plants:** Building and upgrading facilities to treat wastewater can help

manage pollution and keep water bodies clean.

- **Water Recycling Technologies:** Encouraging industries and cities to recycle and reuse water can reduce the demand for fresh water.

3.Managing Water in Agriculture:

- **Irrigation Systems:** Modernizing irrigation with systems like drip and sprinkler irrigation can save a lot of water in farming, which uses the most water.
- **Precision Agriculture:** Investing in technologies like soil moisture sensors can help farmers use water more efficiently.

4.Smart Water Management:

- **Digital Solutions:** Using IoT and AI for monitoring water usage and detecting leaks can improve water management.
- **Smart Metering:** Installing smart water meters can help track water use more accurately and encourage conservation.

5.Desalination Projects:

- **Coastal Areas:** Desalination, which turns seawater into drinking water, can be a good solution for coastal regions facing water shortages.

6.Rainwater Harvesting and Groundwater Recharge:

- **Urban and Rural Areas:** Encouraging rainwater harvesting and groundwater recharge can help

replenish groundwater and reduce water scarcity.

7. Public-Private Partnerships (PPPs):

- Collaborative Projects: Partnering between the public and private sectors can bring innovation and efficiency in developing water infrastructure and services.

8. Renewable Energy for Water Projects:

- Solar-Powered Water Pumps: Using solar energy for water pumps in agriculture can reduce reliance on electricity and diesel, promoting sustainable water use.

Investing in these areas can provide good returns while also helping solve one of the biggest challenges—managing and conserving water.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: CIMCON has actively participated in the Save Water Awareness Program in Bangalore, addressing the critical water crisis in Karnataka. Our operation of 11 pump houses, coupled with the innovative use of SCADA systems in MES Township, exemplifies our commitment to leveraging advanced technology for efficient water management. This initiative has received commendation from notable dignitaries, including IAS officers and the Chairman of the Bangalore Water Supply and Sewerage Board (BWSSB), Dr. Ram Prasath Manohar, highlighting the importance of collaborative efforts in mitigating water scarcity. CIMCON remains dedicated to sustainable water practices and technological advancements, ensuring the conservation of water resources for current and future generations. This initiative underscores the significance of unity and innovation in achieving a water-secure future.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A: There are some best investment opportunities in India's water sector here are some key areas with high potential for growth and development:

1. Water Treatment Plants
2. Sewage collection, treatment, and disposal system
3. Storm Water Drainage System
4. Solid Waste Management
5. Agricultural Water Management
6. Rainwater Harvesting and Groundwater Recharge

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: 1. Smart Water Meters and Sensors:

- Advanced Meters: These provide real-time data on water usage, helping to quickly detect leaks and optimize water distribution.
- IoT Sensors: Monitor water quality, pressure, and flow in real-time, allowing for proactive maintenance and reduced water loss.

2. Data Analytics and Artificial Intelligence:

- Predictive Tools: Use data to foresee and prevent issues like pipe bursts and contamination.
- AI Systems: Help optimize water distribution and treatment, saving energy and cutting costs.

3. Sustainable Irrigation:

- Drip Irrigation: Directs water to plant roots, reducing waste and improving crop yields.
- Precision Farming: Uses data from sensors and drones to optimize when and how much to water crops.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: The water industry in India can significantly benefit from digitalization and data-driven strategies to enhance management practices and decision-making. Here are some ways:

- Real-Time Monitoring and Management
- Predictive Analytics and AI
- Water Quality Management
- Cost Efficiency

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: Balancing the needs of agriculture, industry, and households for water can be challenging, but it can be managed effectively with the following approaches:

1. Comprehensive Planning

- Integrated Approach: Develop water management plans that consider the needs of all sectors—agriculture, industry, and households

2. Efficient Irrigation Practices

- Precision Agriculture: Use data-driven irrigation systems that apply water based on soil moisture levels and weather forecasts, minimizing waste.

3. Data and Technology

- Monitoring Systems: Implement advanced monitoring systems to track water usage and quality across sectors in real-time.
- Data Analytics: Use data analytics to identify trends, forecast demand, and optimize water distribution and usage.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: India can learn a lot from countries that have successfully dealt with water problems. For example, Israel uses advanced drip irrigation and desalination methods to make the most of its water supply. Singapore has an integrated water management system that includes collecting rainwater and recycling wastewater.

To make these ideas work in India, we need to customize them for our local conditions. This means looking at the specific water needs and availability in different regions. Building strong partnerships between the government and private sector, investing in better infrastructure, and educating people about the importance of saving water are all crucial steps. Additionally, creating clear water management policies and involving local communities will help ensure that India's water resources are used sustainably for the long term.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: In the next five to ten years, the water industry in India is poised for significant growth, driven by technological advancements, policy reforms, and increased awareness of water conservation.

Technologically, we can expect wider adoption of smart water management systems, including IoT-based monitoring, advanced filtration methods, and efficient irrigation techniques like precision agriculture. These innovations will help optimize water usage and reduce wastage.

Policy-wise, the government is likely to introduce more comprehensive water management regulations, focusing on sustainable practices, water recycling, and conservation incentives. These changes will aim to address the pressing challenges of water scarcity and quality.

Overall, the industry's growth will be marked by greater investments in infrastructure, stronger public-private partnerships, and enhanced community involvement. This holistic approach will not only improve water availability and quality but also ensure the long-term sustainability of India's water resources.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: Although I haven't personally been involved in any specific projects addressing water-related challenges in India, I can share insights from various successful initiatives and their outcomes.

Project: CANAL SCADA Solutions

Objective: The primary goal of this project is to implement a Master SCADA system for real-time monitoring and automated gate operations, ensuring precise and efficient water management.

Addressing Key Challenges:

- **Manual Operations:** Previously, operations were time-consuming and prone to errors.
- **Labor-Intensive:** Significant human resources were required.
- **Delayed Response:** There was a slow reaction to changing conditions.
- **Limited Accessibility:** Remote control options were non-existent.

Key Benefits:

- **Automated Control:** Reduces errors and ensures precision in operations.
- **Real-Time Monitoring:** Enables quick responses to changes.
- **Remote Accessibility:** Improves overall efficiency and safety by allowing operations to be controlled remotely.
- **Enhanced Data Management:** Provides accurate data for better decision-making.
- **Improved Efficiency:** Streamlines operations and reduces the need for manual labor.
- **Operational Safety:** Minimizes risks associated with gate operations.
- **Consistent Water Supply:** Ensures reliable irrigation for agriculture.
- **Optimized Electricity Generation:** Allows better control of water releases for electricity production.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future

generations in India?

A: To ensure sustainable water management and secure water resources for future generations in India, the government, private sector, and civil society need to work together.

Government: The government can create and enforce strong water policies, invest in necessary infrastructure, and offer incentives for water-saving practices. They can set rules and encourage sustainable water use to guide everyone in the right direction.

Private Sector: Businesses can invest in new water management technologies like smart irrigation and recycling wastewater. They can also adopt eco-friendly practices in their operations and support community water projects. By partnering with the government, they can pool resources and expertise to make these projects bigger and more effective.

Civil Society: Community groups and NGOs can educate people about the importance of saving water and teach sustainable practices. They can also push for policy changes that support water conservation. By involving local communities in water projects, they can ensure solutions are practical and well-received.

Working together, these groups can promote a culture of saving water, encourage innovation, and implement effective solutions for managing water sustainably in India.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: Innovation and entrepreneurship play a crucial role in transforming India's water industry by introducing cutting-edge technologies and creative solutions to longstanding challenges. Startups and innovative initiatives are driving positive change by developing smart water management systems, efficient purification methods, and sustainable agricultural practices.

One promising startup is **JalJeewan**, which uses IoT technology for real-time water quality monitoring and management, ensuring safe drinking water for communities. Another noteworthy initiative is **Nirvana Technologies**, which focuses on affordable and scalable desalination solutions to address water scarcity.

These examples demonstrate the potential of innovation and entrepreneurship to revolutionize water management in India, making it more efficient, sustainable, and accessible for all.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: I don't have any favourite book or favourite movie generally it depends on story line.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: My advice to the team at EverythingAboutWater is to keep looking for and using the latest technologies and sustainable practices in water management. Partner with innovative startups and use data to create effective solutions. Also, focus on engaging and educating communities about the importance of saving water. This will help ensure the long-term success and sustainability of your projects.

Q: Lastly, How can our audience stay informed about your company's latest developments and initiatives?

A: To stay informed about our latest developments and initiatives, follow us on social media, subscribe to our newsletter, and visit our website regularly. We share updates, success stories, and insights on innovative water solutions, ensuring you're always in the loop with our progress and impact.





Features:

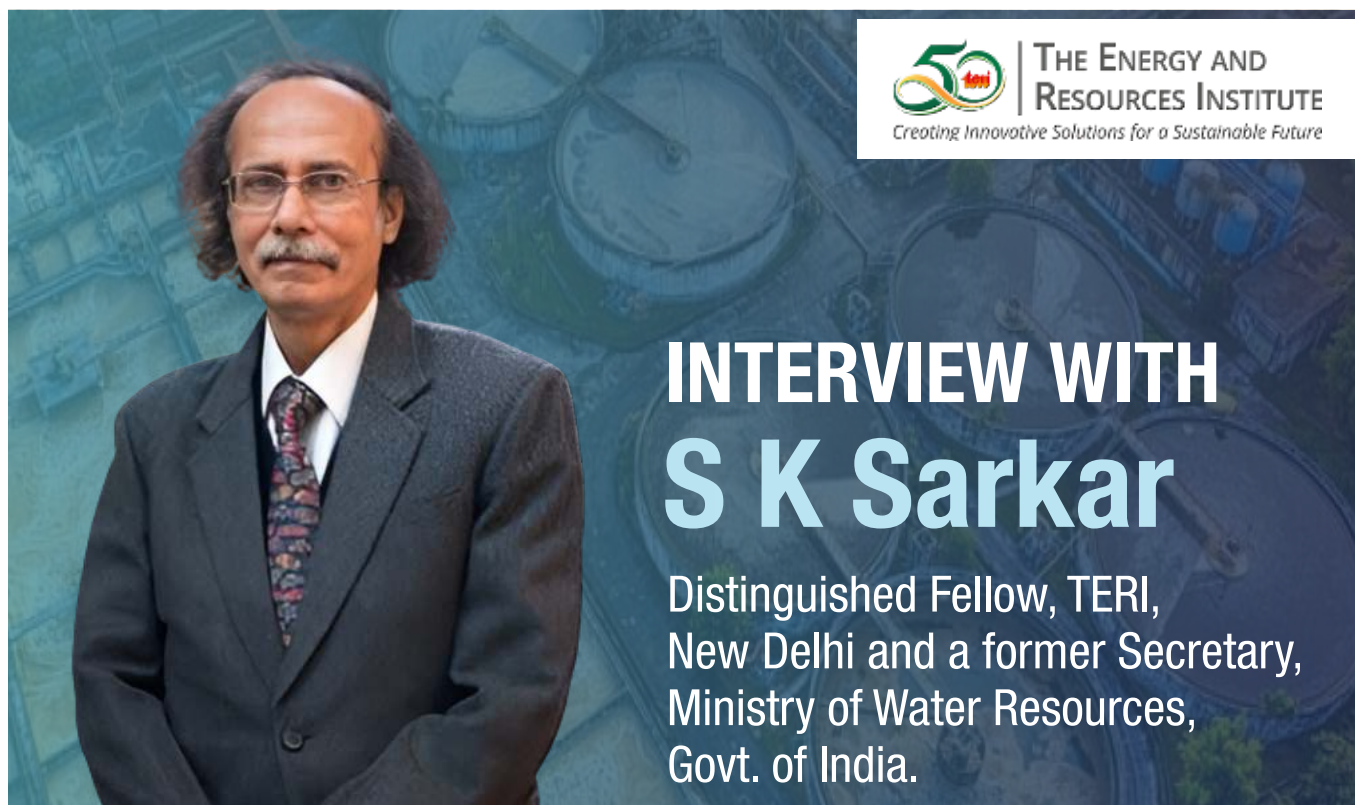
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Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Usher transitions to a cleaner and sustainable future through the conservation and efficient use of energy, water and other resources, and innovative ways of minimizing and reusing waste. In the competing landscape of water industry, TERI, is a research institute for natural resources including water will help in undertaking research oriented activities for sustainable water management in the country and suggest solutions for adoption by Policy makers and various stakeholders including industries.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: For many years the concept of water sector was oriented towards managing the supply side of water. Accordingly the water industry got developed in India. In recent years the supply driven water sector concept has changed, and it has become demand driven sector also. In the demand driven sector water industry is likely to

accelerate in the coming years. For example, the non-revenue water for water supply varies from 30-50% in Indian cities. To address this problem it requires new technology for metering, automation process, control, etc. Use of renewable technology is the norm of the day. The solar power water supply is increasingly used in rural areas in India. For example, in January 2018, 142,000 solar water pumps were deployed in India by various stakeholders, thus, opening a new area of growth of water industry.

Water sector in India is witnessing 'water stress' situation and India is likely to become a water scarce country in the near future. As per NITI Aayog report (2019), by 2030 the water demand is likely to be twice the available water supply. So water conservation has to be the norm of the day and industry can play a major role. Water conservation is expected in various sectors such as agriculture, industries, and domestic sectors.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: Water conservation in industry is one of the activities which TERI has been pursuing over the years. Water

requirements of various sectors of Indian industries had almost doubled during the last decade and are expected to increase more than three fold by 2050. Various industries require large quantity of water for their manufacturing process where at the same time discharging significant volumes of waste water also occur. Industries are better placed to improve water use efficiency. Water audit is one of the options where water saving could be taken care of. TERI has been conducting water audit for thermal power sector, textiles sector, paper pulp industries, steel sector etc. for many years. This is expected to help in achieving the goal of National Water Mission for increasing water use efficiency by 20% over the years.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

A: Water industry includes water engineering operation, water and waste water plant construction, equipment supply, waste water treatment etc. Water industry is at the service of other industries as well. The higher potential in the water industry is on the demand side management of water sector. It can be in the agriculture sector, domestic sector and industrial sector.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: India's water and waste water treatment technology is increasing at a fast pace. According to Frost and Sullivan report (2022) this market is expected to reach USD 2.08 billion by 2025 from USD 1.3 billion in 2021 growing at CGAR of 9.7%. The government programme of NMCG (National Mission for Clean Ganga) is also using waste water treatment technology for cleaning Ganga for quite some time.

There is another technology called 'air to water' technology which is essential for supplying water to remote and vulnerable areas where piped water access is not possible. The atmospheric water generation under this technology reduces the temperature of collected air below the dew point of water vapor in order to turn it into liquid water. Such machines become pivotal in areas of portable water scarcity. This technology is the order of the day and needs to be spread to all areas where there is problem of extending piped water supply.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: Water related data at the ground level are often missed and not encouraged. Although the government of India has WARIS information system for data capturing, the information are difficult to obtain from the field. When such data are captured it should come to the policy makers for formulation of policies by the government. JJM Dashboard is a good example in this direction on data driven approach.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: The competing water demand is a big issue in recent times. Water is mostly consumed in agriculture followed by industry and domestic sector. There are conflicts over water use by various sectors. The case of 'Cauvery water dispute' is an example as to how the conflict over water demand creates problem of resolution which requires intervention by the highest legislative, executive, judicial authorities. The solution lies in saving of water and reallocate the excess saved water to the deficient sector. Recycle and reuse of waste water could be a right option in this regard. Normally, the waste water is thrown away by various users. There are technologies which converts the waste water into reusable water. This process should be adopted in various sectors.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: Israel is a country which has shown to the world that even without rainfall the water problem could be solved. Desalination process have been adopted in a big way in that country. In Israel, 55% of domestic water comes from desalination process. Recycle of waste water to the extent of more than 80% of domestic water is the norm in Israel. These are big lessons for India as well.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: I think the water industry has a big opportunity for growth due to various reasons. For example, government programmes often call for industrial intervention to achieve various goals. Piped water access programme through Jal Jeevan Mission or SBM program for improved sanitation are part of the sustainable development goals which India is committed to implement. The timeline for achieving the SDG 6 safe water and sanitation is 2030. Industry has to take part for facilitating the achievement of the Goal by the government.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: TERI has invented a technology for treating waste water (including grey water, black water, sewage, municipal water, open drains) called TADOX (TERI Advanced Oxidation Technology). TADOX involves nanotechnology in combination with advanced oxidation process which in situ generates hydroxyl radicals leading to degradation and minimization of pollutants. It helps to bring the parameters such as COD, BOD, POPs even lower than the prescribed norms.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: Sustainable development goals 6a calls for strengthening the participation of local communities in improving water and sanitation management. This calls for cooperation among govt. private sector, civil society and important stakeholders such as women and vulnerable sections of the society. Need for political commitment must exist for bringing this

cooperative mechanism into practice in water sector.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: Innovation in approach helps sustainable water management in the country. For example, under Jal Jeevan Mission programme for piped water supply for rural households, the IOT (Internet of Things) technology for captures the raw data from the field for the public in an easy way. This type of innovation should also occur in making the technology less costly and acceptable to the stakeholders. This will help the water industry in a big way.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: Favorite book : An Uncertain Glory : India and its contradictions by Jean Drèze and Amartya Sen
Favorite movie: 3 Idiots featuring Amir Khan

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: The organisation should participate in sustainable water management and play an active role.

Q: Lastly, how can our audience stay informed about your company's latest developments and initiatives?

A: The audience should peruse TERI website and social media for TERI's latest initiatives in water sector.





INTERVIEW WITH Abdul A. Khurram

Director Technical,
Water Care Services (WCSP)

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Our vision is to be the best in water management practices, including smart water management. Our mission is to engage with every industry to lower their net water cost. We differentiate ourselves by our commitment to innovative and efficient water management solutions that provide substantial cost savings.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: The water industry is set to innovate and evolve exponentially, especially with the integration of AI. We anticipate advancements in smart water management systems, data-driven decision-making, and enhanced sustainability practices.

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in South Asia?

A: We have installed systems at Pepsi that make water reusable for agriculture and horticulture. This initiative not only combats water scarcity but also promotes sustainable water management practices.

Q: In your view, where are the best investment opportunities in the South Asian water sector? Which areas do you think have the highest potential for growth and development?

A: Agriculture holds tremendous potential for smart water management and waste-to-agriculture initiatives. These areas offer significant opportunities for investment and development.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: Establishing and practicing water circularity is crucial. Small electrocoagulation systems, sustainable at a domestic level, can contribute to a healthier nation. These technologies help in recycling and efficient water use.

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance

management practices and decision-making?

A: Digitalization and data-driven strategies provide real progress and transparent, reality-based achievements. They help us set and achieve clear goals, enhancing overall water management practices.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: The first right to water belongs to humans, followed by animals and then agriculture. For industry, the concept of recycling is essential. Effective management involves prioritizing and implementing sustainable practices across all sectors.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: Water scarcity and stress have just begun in India. We must become water positive through integrated water management, rainwater harvesting, and recycling. Implementing a complete water circularity model is

essential.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: Policy changes will drive behavioral changes. Sustainable technologies, such as metering and digitalization, will play a significant role in the future of water management.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in South Asia? What were the outcomes and key takeaways from these experiences?

A: We have introduced water credits and waste-to-agriculture projects using bioremediation. Our water credit card is a pioneering solution for managing both grey and drinking water, representing the future of water management.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: Reducing per capita water consumption is crucial. Civil society and individuals must play their roles to ensure water availability for future generations through responsible usage and conservation efforts.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or

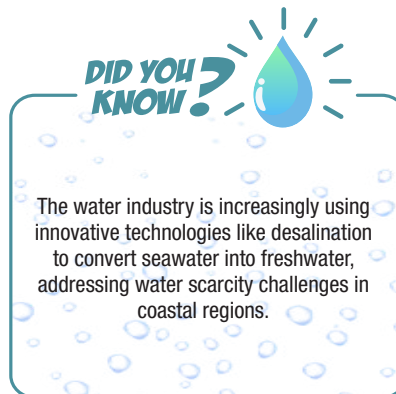
A: Innovation and entrepreneurship are vital. Connecting these efforts with tax incentives, such as rebates for water savers, can drive positive change. Promising startups and initiatives focused on sustainability and efficiency are particularly noteworthy.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: My favorite movie is "Silsila," and my favorite book is "Wastewater Engineering: Treatment and Resource Recovery" by Metcalf and Eddy.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: You are doing an excellent job spreading water knowledge and making it accessible. Continue striving for better teamwork and never give up on your mission



About the Author

I am working as technical director Water Care Services Pakistan. I as water expert work on multiple water and climate change projects. My background in the water field, eligible me to work for international organization such as IWA Publishing & World Water Policy (WWP), Water Management & Services. I have a passion for water, environmental advocacy, and a commitment to sustainable practices. I am eager to bring my skills to your dynamic team, to serve in water science as Editor.

I worked on environmental management projects here. Additionally, my academic background in I have completed M.Sc. Applied Environmental Sciences and M.Sc. Chemistry from Punjab University Lahore Pakistan, with MS TQM and a rich projects and field experience of more than two decades, in Water, Environment and Climate Sciences equipped me with a strong understanding of the complexities surrounding climate change and the urgent need for collective action.

I am drawn to write for your journal "Everything about water", commitment to promote initiative or campaign, e.g., promoting water science, water management, review of water policies, blue economy, water innovation and updates, advocating for sustainable policies, and I am eager to leverage my skills to support these initiatives. My adaptability, team developing, raising competency and challenge taking, problem-solving mindset, innovative water tools & applications, and passion for sustainability make me a strong fit for a role that requires collaborative efforts and innovative solutions.



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INTERVIEW WITH Ran Kedem

Partner at
Real Technologies Ltd

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Our vision: making the digital transformation in water utilities smart but at the same time, simple (to install, maintain and use), Secured and affordable to any water & sewage utility in cities and remote rural areas. Making all the relevant & required data easily available in real-time to the entire organization authorized workers, improving the Coordination, collaboration, and data sharing within the organization, reduces response time, and increase productivity, efficiency, safety and corporate governance.

Our Mission: to develop and provide the most advanced IoT and cloud based holistic platform for real time remote control & data management from "A to Z". a platform which will be, simple, secured & affordable to any utility with any budget with no need for special highly skill team.

Our uniqueness: we have developed a unique platform named RealiteQ - Real-time comprehensive

IoT & cloud based "all-in-one" platform from the infrastructure level through the ICT, SCADA level and up to the Cybersecurity & data analytics level for real time, remote-control & operational Data management. The solution is almost plug & play, the installation is fast and simple, it is 100% flexible, scalable and modular. It is a highly secured hierarchical system that can be used from the local facility level up to the Utility, state & national level.

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: The current trends are technology driven utilities turning undeveloped networks to developed networks by adding many IoT devices to the water system and collecting a huge amount of data. Unfortunately, most of the collected data is lost in the system and is not used in real-time or at all. The reason for that is that most of the network use digital devices which are not interfacing with each other making the processing and use of the data challenging especially in real-time.

I believe (and hope) that in the coming future the focus

will move from technology driven to Data driven utilities using comprehensive platforms like Ours (RealiteQ), where the technology is designed from the beginning to serve the new data challenges. If in the past the data challenge was lack of data, the use of advanced digital technology solve this problem but created a new data challenges – Data availability, meaning Data aggregation & processing in real-time while making the relevant data easily available to all authorized users in real time according to their needs...in the coming future the main requirements from the technology will be to provide a comprehensive integrated system for data management in real time; from data collection through data aggregation, data integration, data processing & analysing, and up to data sharing and remote control, all in a real-time in one comprehensive platform. Based on this understanding we have developed RealiteQ in the last 10 years, and this is why we are already there.

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A: Today, the industry is inundated with relevant

technologies, ranging from sensors and controllers to advanced telemetry solutions and up to the new generation of cloud based SCADA systems. However, the true challenge in improving efficiency and

sustainability in water management lies in addressing the data challenge. Specifically, how can we ensure that all the collected data is readily available in real-time to relevant employees and utility departments, already processed according to the specific needs of different users?

To tackle this challenge effectively, a holistic technology platform must be used to serve as the foundational technology solution. Such a platform manages data throughout its lifecycle, from collection to aggregation, processing, and sharing—all in a user-friendly, real-time manner

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: In India, water utilities are broadly divided into two categories: urban utilities and rural utilities. Urban utilities typically serve densely populated areas, while rural utilities often cover a large area with many scattered villages and small towns. In both cases, managing and controlling water networks pose significant challenges. Establishing effective management strategies at all levels—from individual facilities to entire utility network and up to local and national government levels—is crucial.

India faces numerous challenges, including water scarcity on one hand and flooding on the other. Coupled with increasing demands for 24/7 access to high-quality water and improved customer service, the management and control of water resources become highly complex. Smart digitization of water systems is, in fact, the only solution that can provide practical, real-time tools for efficient management not only of water systems but also of the entire water sector. It helps reduce water and energy waste, enhance operational efficiency, monitor water quality, and improve overall corporate governance and service.

Given the diverse and decentralized nature of water systems, it's essential to develop an interactive, modular, and scalable system while maintaining high levels of security - exactly for that it is needed to Apply smart and advanced and comprehensive digitalization and data-driven strategies.

Q: Balancing the needs of agricultural, industrial, and

domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: indeed, balancing the water consumption needs of industry and agriculture on one hand, and the increasing demand for high quality drinking water by domestic users on the other, is a challenge. Paradoxically, the solution lies within the problem. Extensive drinking water supply for local domestic consumers generates a significant amount of wastewater, which, in fact, becomes a new and abundant source of water that can serve industry, agriculture, and even urban landscaping where needed. Therefore, it is crucial to incorporate systems for collection, treatment, and reuse of wastewater alongside the drinking water supply system. Integrating and coordinating both systems (the drinking water system and the wastewater system) allows for effective balance between needs while also contributing to environmental preservation. We have such projects managed by RealiteQ, starting from wastewater collection through treatment facilities to reused water distribution up to the end users at the irrigation point in agricultural areas. Such projects involve numerous dispersed facilities (pipes, lift stations, reservoirs, wastewater treatment plant, irrigation system heads...), across large geographical areas and require a real-time control and monitoring system that can connect to all these different facilities throughout the process. It ensures water quality on one hand and manages various processes and water distribution on the other hand.

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: After years of traveling around the world and familiarizing myself with water systems of all types and sizes, I can confidently say: Almost always, when I engage with senior water utility managers, I hear something along the lines of, "But our system is different..." And in response, I emphasize that in similar water systems all over the world, the differences are often negligible. This observation illustrates the primary challenge in introducing new technologies and methodologies to water systems worldwide. Water companies often hesitate to learn from others' experiences, believing that solutions effective elsewhere won't apply to them. My advice to Indian water companies is simple: Leverage the accumulated global knowledge, adopt new proven technologies, and benefit from the trial-and-error lessons of others. Doing so will save time, money, and prevent mistakes that others already did...

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

A: In general, I hope that the current policy led by the Indian government will continue. Continuity is crucial when it comes to national infrastructure policy, especially in water and wastewater management. I believe the current governmental policy is moving in the right direction by focusing on improving water management and increasing access to clean water for all citizens. Additionally, the encouragement and investment in digital transformation initiatives within the water utilities sector are commendable. Government initiatives such as the 'Smart Cities Mission' and the 'AMRUT' and 'AMRUT 2.0' schemes aim to provide basic infrastructure in 500 cities and towns across India. These schemes also prioritize the use of digital technologies to enhance water management and distribution. Overall, this policy is undoubtedly headed in the right direction, and I hope it will continue.

However, I would like to offer some advice regarding technological advancements. It is essential to remain open to global digital technologies and their adoption. Investing in digitalization, particularly in water and wastewater networks, represents a long-term commitment. If the technical foundation (currently being established in India) is not robust, it could significantly impact water network quality for years to come.

Let us continue to prioritize continuity, innovation, and global collaboration in our pursuit of sustainable water management.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: In 2019, Real Technology participated in the largest Two Nations Hackathon, known as the Sunrise Open Challenge Hackathon (SOCH), which brought together India and Israel. SOCH was launched by The Sunrise State's Andhra Pradesh Innovation Society (APIS) in association with DCF Ventures. Real Technologies was honoured as the winner of SOCH - INDIA Drinking Water for its proposal on Digitizing Water Infrastructure. Following this winning, plans were made for a Proof of Concept (POC) project in Andhra Pradesh, but it has not yet materialised.

An Indian National guideline has been published lately and all utilities have been asked to follow these guidelines. I had the honour and privilege to give my small contribution to this guideline.

The Indian National guidelines Part A engineering was authored by Ashok Natarajan Task force committee member for Ministry of housing and Urban affairs . In course of writing this engineering document Ashok discussed in detail with RealiteQ best practices across the world and he fully acknowledges that the cloud based IoT architecture , comparison with legacy Scada , interfacing IoT with GIS and details of control for different facility find mention in the engineering manual of Chap 14 automation .Ashok added in his own words “ Truly admire the inputs provided by Ran Kedem the Managing Director of RealiteQ especially his deep practical experience on automation of various components of water supply system and cloud based IoT systems schematics to store and process data based on cloud computing technologies rather than local servers thus allowing for scalability and flexibility which Indian water utilities need

We are also thrilled that we have been invited to participate in the inaugural gathering of the Israel-India Center of Water Technology (IICoWT), scheduled to take place from August 4th to 7th in result of an agreement between AMRUT, the Ministry of Housing and Urban Affairs, IIT Madras, and the Government of Israel, with the aim of establishing the India-Israel Centre of Water Technology.

During this event, I will be presenting RealiteQ – our advanced IoT and cloud-based holistic platform for real-time remote control and data management. Additionally, I will actively participate in the professional sessions, round tables, and discussions that will be held between Indian and Israeli professional teams.

Our hope is that this event will position RealiteQ as a well-prepared solution for digitizing projects led by the Indian government, and we eagerly anticipate conducting our first Proof of Concept (POC) shortly after the event

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A: Any National sustainable policy must have three pillars: The government that initiate, finance and push, the private sector who brings the state-of-the-art knowledge, methodologies and technologies with efficient execution capabilities and last but not least the civil society which

should gain from the policy, the most important outcome of such policy is always the long-term sustainable contribution to the civil society wellness.

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: Startups represent the future of various industries, including the water sector. However, it's crucial to recognize that there is a significant journey that any startup must undertake before its solution becomes a viable product suitable for implementation within water networks. For instance, at Reali Technologies, we initiated the development of our solution—RealiteQ—as early as 2008. Over the past few years, following successful projects in Israel, we expanded globally, with thousands of installations across more than 40 countries. RealiteQ has proven to be a game-changer in the digitization of water utilities, offering a smart, straightforward, and cost-effective IoT and cloud-based solution for real-time operation, data management, and device facilities.

Drawing from my extensive experience in introducing new technologies to the market and as a partner in a technology company, I emphasize the importance of supporting and promoting startups. However, this support requires patience and time. In addition to nurturing new startups, consider exploring those already in their growth stage—ones with a proven, safe technology that delivers tangible benefits to users

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: I have a deep love for reading, and among my favourite books, I'd like to recommend two that are highly relevant to this interview: 'Let There Be Water' by Seth Siegel and 'Startup Nation' by Dan Senor and Saul Singer. These books collectively delve into the fascinating narrative of Israeli high-tech and water technology. They highlight the powerful fusion of creativity and practicality that drives innovation and development, bringing the story of the Israeli high-tech and water technology. It also presents the winning combination of creativity and practicality that lead the innovation and development that brought us at Reali Technologies to develop a breakthrough platform like RealiteQ.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: You are doing a great and very important job, my advice is continuing in what you are doing so well and give more space to professionals, technologies and case studies from all over the world.

Q: Lastly, How can our audience stay informed about your company's latest developments and initiatives?

A: You are all invited to visit our website: www.RealiteQ.com , follow us at LinkedIn or contact me directly with any question or requests: ran.kedem@RealiteQ.com



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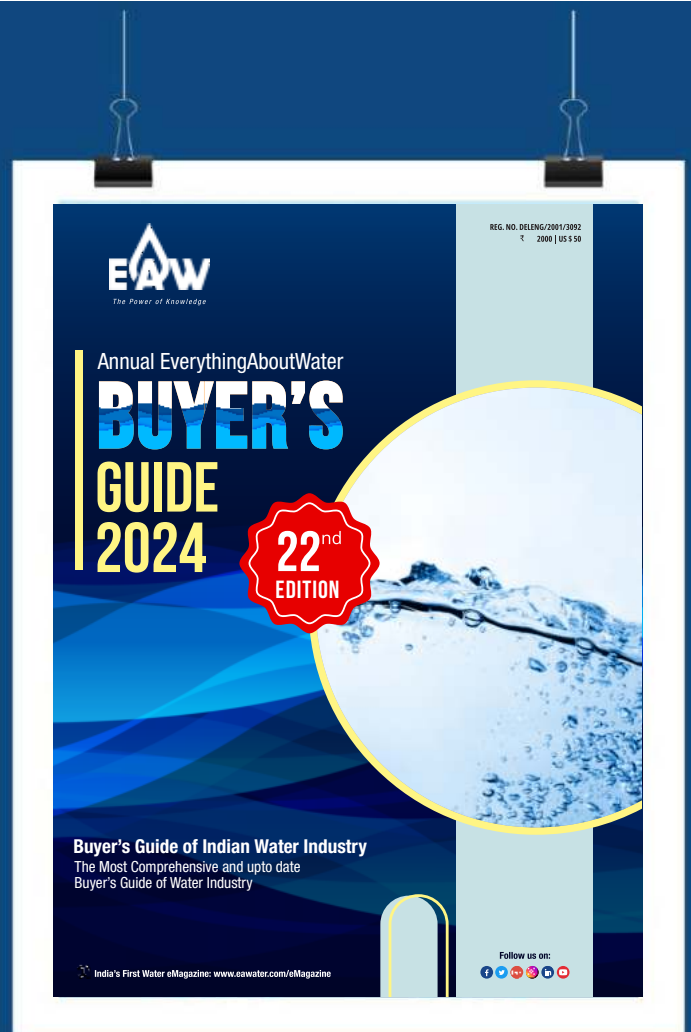
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INTERVIEW WITH Eng. Theogene RUSATIRA

WASH EXPERT,
Movement for the Fight against
Hunger in the World

Q: Can you share your company's vision and mission regarding water management and sustainability? How does your company differentiate itself in the competitive landscape of the water industry?

A: Movimento Lotta alla Fame nel Mondo (MLFM) is an international non-profit organization that aims at improving access to safe drinking water, adequate sanitation, and hygiene education. MLFM works hand in hand with the local authorities to improve water and sanitation policies to meet the needs of the population and reach the targets of the Sustainable Development Goals

Q: What are the current trends and major innovations in the water industry? How do you see the future of the water industry evolving over the next 5-10 years?

A: a) Current trends and major innovations in the water industry are:

- * Ensure availability and sustainable management of water and sanitation for all
- * The increment of non-revenue water
- b) The future of the water industry evolving over the next 5-10 years
- * The reduction of non-revenue water as much as possible
- * Availability and sustainable management of water and

sanitation for all

- * The increase of water sources to accommodate future population growth

Q: Can you share some of the initiatives your organization has taken to combat water scarcity and promote sustainable water management in India?

A: From 02nd to 04th February this year, People from our Company were sent in India during Global South Academic Conclave on WASH and Climate linkages to discuss with the water experts around the world the solution of water scarcity in India.

Q: In your view, where are the best investment opportunities in India's water sector? Which areas do you think have the highest potential for growth and development?

- **A:** The increase of Wastewater treatment technologies to the acceptable standards limits to be used as the additional water source.
- Investment in the decrease of non-revenue water
- The increase of alternative of water sources, for instance rainwater harvesting, underground water extraction, as the second option to top up the

existing water sources in use

Q: What are some key technologies and innovations that are helping to improve efficiency and sustainability in water management?

A:

- a. Introduction of smart water meter for proper water management,
- b. To form and empower water user committees for proper water management
- c. Sensibilisation for women to use less water in their daily home activities for proper water management at family level.
- d. Formation of technicians at village level to address water problems (Leakage, pipe broken, etc)

Q: How can the water industry in India benefit from digitalization and data-driven strategies to enhance management practices and decision-making?

A: The introduction of smart water meter technologies and other data-driven technologies like the use of Global Positioning Systems (GPS), Supervisory Control and Data Acquisition (SCADA) systems are used for controlling,

monitoring, and analyzing industrial devices and processes.

Q: Balancing the needs of agricultural, industrial, and domestic water users can be challenging. How do you think these competing demands can be managed effectively?

A: It is important to search for the other source of water to top up the existing source of water currently in use, those sources can be:

- Extraction of underground water sources,
- Introduction of rainwater harvesting practices
- Introduction of wastewater treatment technologies whereby supernatants meeting the standards limit to be reused.
- Invest More In Water Conservation Projects

Q: What lessons can India learn from other countries that have successfully addressed water issues? How can these be adapted to the Indian context?

A: 1. Reduce Excessive Dependency On Water Sources

Be it groundwater or water bodies, excessive usage will inevitably lead to exhaustion as has happened in the case of Cape Town and closer home, Bengaluru. 395 billion cubic metres of groundwater is available in India, the usage of which has gone up to 66 per cent in 2015 from 58 per cent in 2004, and water experts are concerned about. India's groundwater usage is expected to reach nearly 75 per cent in 2025, an alarming number. To avoid a Cape Town like situation, urban spaces must reduce their dependency on water sources and invest more in water recycling and rainwater harvesting.

2. Encourage Rainwater Harvesting

Sierra Leone, a West African country used to be one of the world's worst water scarce countries till 2010, with people paying exorbitant amounts for as low as 10 litres of water per capita daily. Since 2011, rainwater harvesting has become widespread in Sierra Leone, and currently nearly 40 per cent of the country's area is covered by rainwater harvesting systems in scales large and small. Rainwater harvesting serves multiple purposes, including using the water for irrigation, a large concern in India as water from the ground and rivers, lakes is extensively used to water crops. India can learn from the likes of Singapore, Thailand, Japan, Indonesia and closer home, neighbour Bangladesh to harvest rainwater successfully.

3. Check Rapid Urbanisation

In 2013, World Water Council corroborated reports for its study on the relationship between urbanisation and water crisis. Findings showed that unplanned urbanisation,

especially in developing economies has had devastating effects on water levels. In India, rapid expansion of cities like Bengaluru, Delhi, Mumbai and the depleting levels of groundwater, along with pollution of adjoining rivers is a stark example of how urbanisation affects water. Not allowing commercial or residential establishments to operate within a certain parameter from a water body is a step that must be considered in India if the country's water crisis is to be addressed seriously.

4. Invest More In Water Conservation Projects

Given India's population of 1.2 billion and volume of water usage of nearly 1,000 billion cubic metres in 2013, the gravity of the water crisis is on a bigger scale, compared to smaller countries. It must also be kept in mind that pan India water conservation projects will cost significantly, so sufficient budgetary allocations need to be made for water conservation. The Rs 20,000 crore allocation for the Namami Gange programme, which aims to clean the river Ganga and restore its flow is an example of a significant allocation towards a large scale water conservation project. Similar projects must be undertaken for other waterbodies and groundwater in India to tackle the water crisis. China has invested \$131 billion (Rs 64,000 crore) in 2017 alone towards large scale water conservation projects. The country has identified several sites where large storage containers will be built and rainwater will be stored to minimise dependency on groundwater. In Brazil, the citizens have been actively encouraged by the government to ration water. Water drawn from reservoirs has also been reduced by 22% by the government, so that the gap between consumption and the filling of reservoirs can be shortened.

5. Create Further Public Awareness

In Tanzania, one of the poorest countries in East Africa, water crisis had reached enormous levels in mid 90s. To make the situation better, the government launched a campaign to encourage water conservation and educated people on how to conserve water and reduce wastage. By 2010, the country had begun to harvest almost 50 per cent of its rainwater. This is a prime example that economic stability need not be the only benchmark to conserve water. Creating awareness among people, especially ensuring they understand that water is not an unending resource, is highly important to make water conservation a mass movement.

Q: Looking ahead, what do you expect for the future of the water industry in India over the next five to ten years, particularly in terms of technological advancements, policy changes, and overall growth?

- **A:** The water industry in India is undergoing significant users.

changes and facing both opportunities and challenges within 5 to 10 years period.

Here are some key points:

1. Bottled Water Industry:

- India was the 12th largest consumer of bottled water by value and the 14th biggest by volume in 2021
- However, the booming bottled water industry raises concerns about access to safe water sources and groundwater depletion.
- Plastic containers dominate packaging, despite efforts to reduce single-use plastic.

2. Water Treatment Market:

- The Indian water and wastewater treatment market is expected to reach \$2.08 billion by 2025, growing at a compound annual growth rate (CAGR) of 9.7%
- Increasing urbanization, climate change, and fresh water demands drive the need for advanced technologies.

3. Challenges and Initiatives:

- Rapid urbanization necessitates changes in water management.
- Automation and digitization are crucial for water companies to stay competitive.
- India's water demand is projected to increase, emphasizing the need for sustainable solutions.
- Balancing water supply, quality, and environmental impact remains a challenge.

Q: Can you talk about any notable projects or initiatives you've been involved in that address water-related challenges in India? What were the outcomes and key takeaways from these experiences?

A: Initiative to wastewater treatment technologies whereby supernatants meeting the standards limit to be reused. Once adopted, it will top up the water source currently in use.

Q: How can the government, private sector, and civil society work together to ensure sustainable water management and secure water resources for future generations in India?

A:

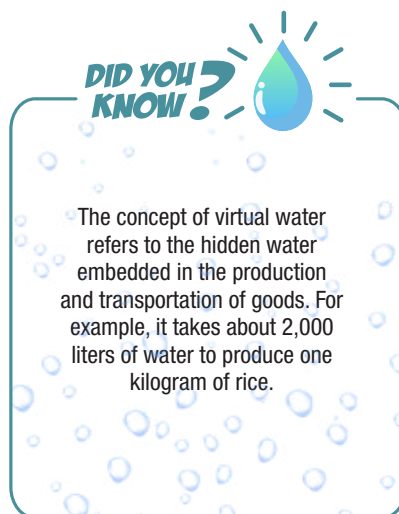
- It is very important that joint projects being implemented to ensure sustainability of water resources management. Many companies are realizing that such projects are most efficient and transformative when conducted in collaboration with governments, civil society, communities and others. Companies seek out partnerships with other organizational actors in order to gain other

perspectives, build on internal competencies, increase leverage, enhance credibility and pool resources to address shared water risks.

- Companies, non-governmental organizations, communities and governments have a shared interest in sustainable water management broadly, there are many specific elements where interests might diverge. For example, while the system as a whole benefits from water allocations that prevent wasteful use, specific actors have an interest in maximizing their allocation in relation to other

Q: What role do you see for innovation and entrepreneurship in driving positive changes in India's water industry? Are there any promising startups or initiatives that have caught your attention?

A: The introduction of Smart water meter system in water management practices



Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: Favorite movies is an Indian movie series called "MOHAN"

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: Organize wide seminars with many water experts to discuss water related issues

Q: Lastly, how can our audience stay informed about your company's latest developments and initiatives?

- A:**
- Invite the staff of my company to conduct visit at your office and come back to witness your good actions.
 - Through the emails the discussions are made to share the information.



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INTERVIEW WITH Om Prakash Roy

Principal,
Langat Singh College

Q: Could you please share your college's details?

A: Langat Singh college (NAAC A) is a constituent unit of BRA Bihar University, earlier affiliated to Calcutta University until 1952. Our college holds a special place in the history of India's freedom struggle, having played a significant role in shaping the minds of future leaders. Mahatma Gandhi himself visited our campus in 1917, leaving a lasting impact on the students and faculty.

Founded 125 years ago, our college has a long and prestigious history. Over the years, it has been home to many great personalities, including Dr. Rajendra Prasad, the first President of India, Acharya Kriplani, a prominent freedom fighter, and Rashtrakavi Dinkar, a renowned poet. These illustrious figures have not only studied in our college but have also served as teachers, imparting their knowledge and wisdom to generations of students.

As we recently celebrated our 125th foundation day, it was a time for reflection and gratitude. We honored the rich legacy of our college and the contributions of all those who have been a part of its journey. It was a moment to recognize the sacrifices and dedication of those who fought for our country's independence and to reaffirm our commitment to upholding their values and ideals.



Looking towards the future, we are determined to continue the legacy of excellence and service that has characterized our college for over a century. We strive to inspire and empower our students to become responsible citizens and leaders who will make a positive impact on society.

As we commemorate our 125th foundation day, we are reminded of the importance of the past in shaping our

present and future. Our college stands as a testament to the power of education and the spirit of freedom, and we are proud to be a part of its enduring legacy.

Q: Can you share some of the initiatives your college has taken to combat water scarcity and promote sustainable water management in India?

A: Water crisis is a global concern and we can't leave it to



governments only to resolve it for us. Every organization, NGO, Government, society needs to make holistic efforts to combat these concerns that are threatening the human kind. Scary news of water crisis, low quality of drinking water facilities, violence for water keep surfacing every now and then. We, at Langat Singh College understand our responsibilities and committed to do our all-out efforts to contribute our parts in this global mission.

The administration ensures that all water systems, including pipes, pumps, and storage tanks, are regularly inspected and maintained to prevent leaks and water wastage. The administration has implemented policies and guidelines for students, staff, and faculty to promote water conservation in campus. This includes encouraging shorter showers, turning off faucets when not in use, and reporting any leaks or water issues promptly. The college administration in association with NSS NCC and NGOs regularly organizes educational campaigns and workshops to raise awareness about the importance of water conservation and ways to reduce water usage in daily activities.

The college is spread in over 60 acres with around 20 parks. Maintaining the parks requires tremendous amount of water for irrigation. In an effort to conserve water and reduce water usage in parks, new irrigation technologies are being



implemented. These technologies aim to efficiently water plants and grass while minimizing water waste. Some of the innovations include:

Smart irrigation systems: These systems use sensors to monitor soil moisture levels, weather conditions, and plant hydration levels. Based on this data, the system

automatically adjusts watering schedules and amounts to ensure plants receive the optimal amount of water. Drip irrigation is another alternative employed by the college administration which delivers water directly to the roots of plants through a network of tubes and emitters. It reduces water evaporation and runoff, making it a more efficient watering method compared to traditional sprinkler systems.

The college has also implemented rainwater harvesting systems to collect and store rainwater for irrigation and other non-potable water needs on campus. Rainwater harvesting: Some parks are implementing systems to collect rainwater and store it for later use in irrigation. This reduces reliance on freshwater sources and helps to conserve water during dry periods. The college administration is in a process to install a rainwater harvesting system with the support of the ICICI Foundation. This initiative aims to collect and store rainwater to help offset the college's water usage and reduce its environmental impact. The project is expected to be completed in the near future and will demonstrate the college's commitment to sustainability and conservation efforts. By incorporating these irrigation technologies in parks, water usage can be minimized, leading to cost savings and environmental benefits. Additionally, these innovations can help to promote sustainable landscaping practices and conserve water resources for future generations

Q: What are the other measures college has taken to address water crisis issue?

A: We firmly believe that the water crisis issues can't be resolved only through water management techniques. A holistic approach to ensure ecological balance can help more in combating water issues. Keeping these things in mind the college administration has started a rigorous plantation drive to address the water crisis issues on campus. The initiative aims to increase green cover in campus and promote sustainable water management practices.

The college administration has set a target to plant a certain number of trees within a specified time frame to improve the overall environmental conditions of the college campus. The plantation drive is part of the holistic solution to tackle the water crisis issues faced by the society including water scarcity and pollution.

By increasing the green cover on campus, the college hopes to improve the groundwater recharge and water retention capacity of the soil. The trees will also help in reducing surface runoff and erosion, which will contribute to better water management on campus.

The administration is also planning to educate the students

and staff about the importance of water conservation and sustainable practices. They are organizing workshops and awareness campaigns to encourage the adoption of water-saving practices and promote a culture of environmental responsibility among the college community.

Q: What are the positive outcomes of this initiative of the college?

A: These initiative has certainly helped college achieve its goal in last few years. Located in the city notorious for being India's third most polluted city, this campus is serving as the green band of the city with various initiatives such as planting new trees, creating green spaces, and promoting sustainable landscaping practices. The administration has also implemented policies to reduce water consumption and promote energy efficiency in buildings.

Overall, the campus now features more greenery and natural areas, providing not only students and faculty with a healthier and more pleasant environment but also attracting thousands of daily visitors to the campus visiting for a pleasant walk or exercise.

Q: On a personal note, do you have a favorite book or author? How about a favorite movie?

A: Being a student and professor of Physics (since 1996), books on Physics always attract me. To keep pace with the ever changing technology and developments in the field of Physics, I keeping myself updated with latest Physics books. Apart from this, I like to read spiritual books. Our ancient literature is full of wisdom and knowledge, and it is always a privilege to read them whenever I get time.

Personally, I find Premchand's Godan extremely engaging. It has stayed with me since I went through it for the first time. And to answer the question of favourite movie, I don't get the time to watch movies these days, but in my earlier days I had watched Kacche Dhaage. I liked that film.

Q: What piece of advice would you offer to the team at EverythingAboutWater?

A: EverythingAboutWater is doing an exceptional work towards global awareness about water crisis. With technological updates and indepth analysis this magazine is serving as the torch bearer for the water industry. I wish all the best to the EverythingAboutWater team and hope they keep doing their good work.

THINGS YOU MUST DO BEFORE YOU BUY AN OZONE SYSTEM

Selecting and buying an ozone system in India can be very dicey. Since the legal system is very tedious process and many buyers do not want to get into such a mess, the least thing you could do is to exercise caution while you buy an ozone system. It may take you little bit longer to make a purchase decision but you are sure that you do not end up with ornamental ozone systems.

Step 1: Check out exactly how much ozone you require. Don't go by hear say. It has become almost common for an ozone supplier to suggest to you 5 to 10 times more ozone dose than it is required for your application, because that system produces 5 to 10 times lesser ozone that it is supposed to produce .

Step 2: Get detailed technical specification from the Manufacturer. By studying the technical specs, you will know 100% if the ozone system is capable of producing the ozone required for your process .There is no short cut for this . Get from one or two suppliers and compare. Get help from some consultants. When you buy a TV or a smart phone you get all the information you want, you ask your friends, your browse through the internet for the best buy , than why not for an ozone generator ?

Step 3: An ozone application includes injecting ozone into the water. This is a very important step. Check out exactly how this is being done. If through injectors, get details on the injectors and pumps. Do not compromise on locally fabricated injectors. Buy branded injectors even though you pay little more This is also a safety aspect as you are sure there is no ozone leakage in the plant room

Step 4: Ensure you get all the test certificates including ozone production. Get performance data of the venturi and the pump. Check this out and you can find out loop holes in the system

Step 5: Ask for references and contact numbers. Don't just get and keep them. Call them up and check out. If the OEM takes a long time to provide you with reference numbers, than you know something is wrong. If you are local , it is worth visiting one such installation . Visit or call up installations that are 4-5 years old.

Step 6: ozone is a toxic gas. Ozone is produced by high voltage. Hence safety is prime most important. Check out all safety aspects of the ozone generator and the process. Ensure you get a operation manual that covers all safety aspects of the equipment and process. Ensure that training in operations are included. Do not buy systems through internet and install yourself. This is a recipe for disaster

Step 7: Once you have an ozone system in place, ensure you have a regular mechanism to check out on the system and the process. Because more than 90% of the ozone users in the country are not aware if the ozone system is working or producing ozone as required. It is only when there is a process failure, do the user realise that all in not well with the ozone system.

Step 8: Please note. Your nose is very sensitive to ozone smell. You can smell ozone at 0.01 ppm. So you must understand that if you smell ozone that does not mean that the ozone system is producing ozone as claimed. Xerox machines produce ozone but this is not sufficient for any application of ozone.

Awareness can bring about quality enhancement. If there is no system in place to control unscrupulous selling, the user can enforce discipline. Follow these effective steps and you could have a reliable ozone system in place.

ISSUED IN PUBLIC INTEREST BY
V.BARATHARAJ

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THE GREAT BLUE HOLE: A MARINE MARVEL



Nestled off the coast of Belize, the Great Blue Hole stands as one of the most mesmerizing and significant marine phenomena in the world. This giant marine sinkhole, located in the Lighthouse Reef Atoll, is not only a diver's paradise but also a beacon for marine researchers and adventurers alike.

Visible from space, the Great Blue Hole spans over 300 meters across and plunges more than 120 meters deep, forming a perfect circle of deep blue surrounded by vibrant coral reefs. Its formation dates back to the last Ice Age when sea levels were significantly lower, and the area was a limestone cave system. As the oceans rose, the caves flooded and collapsed, creating the striking sinkhole we see today.

For divers, the Great Blue Hole offers an unparalleled underwater experience. Jacques Cousteau, the legendary ocean explorer, famously declared it one of

the top ten dive sites in the world. Divers can explore the hole's crystal-clear waters, encountering stalactites and stalagmites that testify to its ancient past. The marine life here is equally captivating, with sightings of Caribbean reef sharks, nurse sharks, and the occasional hammerhead shark.

Beyond its allure for recreational divers, the Great Blue Hole holds significant scientific value. Marine biologists and geologists are drawn to its depths to study its unique ecosystem and geological formations. The hole serves as a natural laboratory, offering insights into climate change and sea level rise, given its well-preserved geological record.

The Great Blue Hole's significance extends to its contribution to Belize's tourism and economy. As part of the Belize Barrier Reef Reserve System, a UNESCO World Heritage site, it attracts thousands of visitors

annually, contributing to the conservation efforts of the surrounding marine environment.

In essence, the Great Blue Hole is a testament to nature's grandeur and mystery. Whether you're an avid diver, a marine scientist, or simply an admirer of natural wonders, this incredible site promises an experience that is both thrilling and enlightening. The Great Blue Hole is not just a dive into the deep; it's a dive into the history and heart of our planet.



T E N D E R

Installation Of Arsenic Free Water Treatment Plant Beside Hatkhola At Ghorarash Sansad Xix

Category	AMC, Repair, Maintenance, Installation tenders		
Location	West Bengal , Kholapota		
Bid Open Date	24 July 2024	Tender Value	19 Lac
Doc Collection Date	20 July 2024	FTID	24071644180

New Anion And Cation Exchanger In Water Treatment Plant

Category	Scientific Equipment Tender		
Location	Tamil Nadu , Cheyyar		
Bid Open Date	26 July 2024	Tender Value	3.16 Cr
Doc Collection Date	27 July 2024	FTID	240611425240

Construction Of A Arsenic Free Treatment Plant Beside Of Durganagar Primary School Under Daulatabad G P 2023 24

Category	Construction, Infrastructure, Civil Work tenders		
Location	West Bengal , Murshidabad		
Bid Open Date	26 July 2024	Tender Value	8.37 Lac
Doc Collection Date	24 July 2024	FTID	24071644880

Reverse Osmosis Based Point Of Use Water Treatment system For Drinking Purposes (V2) As Per Is 16240

Category	Miscellaneous tenders		
Location	Madhya Pradesh , Chhatarpur		
Bid Open Date	5 August 2024	Tender Value	11.50 Lac
Doc Collection Date	5 August 2024	FTID	240716421770

RO Water Treatment System Above 50 Lph Filtrationcapacity Minimum Average Annual

Category	Furniture, Sports, Home Equipments tenders		
Location	Jammu & Kashmir , Rajouri		
Bid Open Date	20 July 2024	Tender Value	10.14 Lac
Doc Collection Date	19 July 2024	FTID	240716428540

Construction Of 1.00 Mld Sewage Treatment Plant Cum 1.00 Kld Fecal Sludge Treatment Plant Under Sbm 2.0 At T.Kallupatti Town Panchayat, Madurai District

Category	Miscellaneous tenders		
Location	Maharashtra , Osmanaba		
Bid Open Date	11 July 2024	Tender Value	18.90 Lac
Doc Collection Date	12 July 2024	FTID	2406114158430

T E N D E R

Reconstruction Of Damaged Outfall Drain In Bavi Road From Mallappalli Durgarao Street To Mineral Water Plant In Madhuranagar Area 29 Th Division

Category	Construction, Infrastructure, Civil Work tenders		
Location	Andhra Pradesh , Vijayawada		
Bid Open Date	29 July 2024	Tender Value	16.63 Lac
Doc Collection Date	29 July 2024	FTID	240716455910

Re-Rubber Lining Of Tanks Vessels Piping And Other Equipment In Water Treatment Plant As And When Required During The Year 2024 2025

Category	Miscellaneous tenders		
Location	Madhya Pradesh , Huzur		
Bid Open Date	26 July 2024	Tender Value	14.91 Lac
Doc Collection Date	24 July 2024	FTID	2406114190350



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EVENT CALENDAR



June 2024

SIEE Pollutec

02 - 05 Jun 2024

Add Safex - Foire d'Alger, Mohammadia, Algeria

<https://sieve-pollutec.com>

International Exhibition on Environmental Technology & Green Energy

03 - 05 Jun 2024

COEX Convention Center, Seoul, South Korea
<https://www.envex.or.kr/eng/main/index.asp>

Watertech Africa

05 - 07 Jun 2024

Kenyatta International Convention Centre, Nairobi, Kenya

<https://www.expogr.com/watertech/>

GreenTech Amsterdam

11 - 13 Jun 2024

RAI Amsterdam, Amsterdam, Netherlands
<https://www.greentech.nl/>

China (Guangzhou) International High-end Drinking Water Industry Expo

14 - 16 Jun 2024

China Import and Export Fair(Canton Fair Complex), Guangzhou, China

<http://www.ihe-china.com/cn/Invitation/40.IWE/>

Singapore International Water Week

16 - 20 Jun 2024

Singapore
<https://www.siww.com.sg/>

Egypt Infrastructure & Water Expo

25 - 27 Jun 2024

Egypt International Exhibition Center, Cairo, Egypt

<https://www.egyptinfrastructureexpo.com/>

July 2024

European Wastewater Management Conference & Exhibition

02-03 July 2024

The Point at Emirates Old Trafford, Manchester, UK/Online

ewwmconference.com/

Thai Water Expo 2024

03 - 05 Jul 2024

Queen Sirikit National Convention Center, Bangkok, Thailand
www.thai-water.com

12th Annual International Forum on Water

15-18 July 2024

Athens, Greece

www.atiner.gr/water

Water and Aqueous Solutions Gordon Research Conference

20 - 21 Jul 2024

Holderness School, Holderness, USA
<https://www.grc.org/water-and-aqueous-solutions-conference/2024/>

August 2024

The Water Expo 2024

20 - 22 Aug 2024

Miami Airport Convention Center, Miami, USA
www.thewaterexpo.com/

AgriTech India 2024

22 - 24 Aug 2024

BIEC Bengaluru International Exhibition Centre, Bengaluru, India
agritechindia.com

September 2024

19th EverythingAboutWater Expo 2024

10-12 September 2024

Yashobhoomi, IICC, Dwarka, New Delhi
www.eawaterexpo.com

EcwaTech 2024

10 - 12 Sep 2024

Crocus Expo, Moscow, Russia
en.ecwatech.ru

CamWater 2024

11 - 13 Sep 2024

Diamond Island Convention and Exhibition Center, Phnom Penh, Cambodia
www.camwaterexpo.com

Taiwan International Water Week 2024

11 - 13 Sep 2024

Taipei World Trade Center, Taipei, Taiwan
www.taiwanintwaterweek.com

Water & Wastewater Management Expo 2024

11 - 12 Sep 2024

The Emergency Services Show, Birmingham, UK
www.ess-expo.co.uk

Indo Water Expo & Forum 2024

18 - 20 September 2024

Grand City Mall & Convex Surabaya, Surabaya,

Indonesia

indowater.com/

Water and Wastewater Fair 2024

24 - 26 Sep 2024

Elmia, Jönköping, Sweden
www.elmia.se/en/va-massan/

October 2024

Aqua Ukraine

15-17 Oct 2024

Ukraine, Kyiv | International Exhibition Centre
www.iec-expo.com.ua/en/aquaen-2024

WWEM - Water, Wastewater and Environmental Monitoring Conference

09-10 Oct 2024

NEC, Birmingham, UK
www.ilmexhibitions.com/wwem/

WETEX 2024

01-03 Oct 2024

Dubai World Trade Centre (DWTC)
www.wetex.ae

IFAT India

16-18 Oct 2024

Bombay Exhibition Centre, NESCO, Mumbai
www.ifat-india.com

Cairo Water Week 2024

13 - 17 Oct 2024

The Nile Ritz-Carlton Cairo, Cairo, Egypt
www.cairowaterweek.eg

November 2024

Produced Water Management, Treatment & Reinjection 2024

28 Oct - 01 Nov 2024

Dubai, UAE
10times.com/e1x5-z5p1-f9sp

Deepwater Operations Conference & Exhibition 2024

05 - 07 Nov 2024

Moody Gardens Hotel Spa and Convention Center, Galveston, USA
www.offshore-event.com/2024home/home

Vietwater 2024

06 - 08 Nov 2024

Saigon Exhibition and Convention Center, Ho Chi Minh, Vietnam
vietwater.com

SADC Groundwater Conference 2024

EVENT CALENDAR



13 - 15 Nov 2024
Maseru, Lesotho
www.sadc.int

Annual WMAO Conference 2024
19 - 20 Nov 2024
Crowne Plaza Columbus North -
Worthington, Columbus, USA
wmao.org

Clean India Show 2024
21 - 23 Nov 2024
Bombay Exhibition Centre (BEC), Mumbai,
India
ctwindia.com/clean-india-show/

Floodex 2024
27 - 28 Nov 2024
ExCeL London, London, UK
floodex.co.uk

National Drainage Show 2024
27 - 28 Nov 2024
ExCeL London, London, UK
drainageshow.com

December 2024

GeoSmart India (GSI)
02 - 05 December 2024
Hyderabad, India
geosmartindia.net/2024/

Pak Water & Energy Expo 2024
03 - 05 Dec 2024
Karachi Expo Center, Karachi, Pakistan
www.pakwaterexpo.com

Exhibition on Water / Water Forum
04 - 06 December 2024
Belgrade Fair - Hall 3 / Belgrade / Serbia
www.sajamvoda.rs

Aquatech China 2024
11 - 13 Dec 2024
Shanghai New International Expo Centre
(SNIEC), Shanghai, China
www.aquatechtrade.com/shanghai

January 2025

Water Exhibition & Conference
14 - 16 Jan 2025
ADNEC Centre Abu Dhabi, Abu Dhabi, UAE
www.worldfutureenergysummit.com

NEWEA Annual Technical Exhibition & Conference

26 - 29 Jan 2025
Boston Marriott Copley Place, Boston, USA
annualconference.newea.org

InterAqua
29 - 31 Jan 2025
Tokyo Big Sight, Koto, Japan
en.www.interaqua.jp

Michigan Onsite Wastewater Conference
07 - 08 Jan 2025
Kellogg Hotel and Conference Center, Lansing,
USA
events.anr.msu.edu/event

February 2025

Indomach
06 - 08 Feb 2025
Adityapur Auto Cluster, Jamshedpur, India
indomach.in

World Ag Expo
11 - 13 Feb 2025
International Agri-Center, Tulare County, USA
www.worldagexpo.com

Mountain States Ground Water Expo
13 - 14 Feb 2025
Aquarius Casino Resort, Laughlin, USA
mountainstatesgroundwater.com

Water and Waste Expo
20 - 22 Feb 2025 Pragati Maidan, New Delhi,
indiawatersolidwaste.in

World Water Tech Innovation Summit
25 - 26 Feb 2025
Park Plaza London Riverbank, London, UK
worldwatertechinnovation.com

Membrane Technology Conference & Exposition
24 - 27 Feb 2025
Long Beach, USA
www.amtaorg.com/awwaamta-membrane-technology-conference-exposition

Water Today's Water Expo
26 - 28 Feb 2025
Chennai Trade Centre, Chennai, India
www.waterexpo.biz

March 2025

International Conference on Advances in Water Treatment and Management
1-2 March 2025

Gandhinagar, Gujarat, India
www.pdeu-h2o.com

Sioux Empire Water Festival
4-5 March 2025
Sioux Falls, USA
sewf.org

Hot Water & Hot Air
4-6 March 2025
Portland, USA
www.aceee.org/2025-hot-water-hot-air-forums

International Conference on Water Management Modeling
5-7 March 2025
Toronto, Canada
www.icwmm.org

Oman Sustainability Week
11-15 May 2025
Muscat, Oman
www.omansustainabilityweek.com

ISH - World's leading trade fair HVAC + Water
17-21 March 2025
Frankfurt, Germany
ish.messefrankfurt.com/frankfurt/en.html

Aqua Netherlands
18-20 March 2025
Evenementenhal Gorinchem, Netherlands
www.aquanederland.nl/en

Water & Clean Tech India Expo
19-21 March 2025
Pragati Maidan, New Delhi
www.smartcitiesindia.com

Water Philippines Expo & Conference
19-21 March 2025
SMX Convention Center, Manila, Philippines
www.waterphilippinesexpo.com

BAYWATCH



30 JULY - 1 AUGUST 2024

JIE expo Kemayoran, Jakarta - Indonesia

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PUMP, VALVE SYSTEM & EQUIPMENT INDUSTRY**

www.pump-valve-indonesia.net



Indonesia as the largest archipelagic country in the world, known as a maritime country with most of its territory is the waters. And has owned the land area with 191.07 million Ha which 50% of it has potential for agriculture.

Date: 30 July – 01 Aug 2024

Venue: JIE expo Kemayoran, Jakarta – Indonesia

Website: www.pump-valve-indonesia.net

The resounding big success of Pump & Valves Indonesia 2023 held along with INAGRITTECH, INAPALAM Asia, and SugarMach Indonesia have attracted 268 companies from 22 countries and 7693 trade attended from over 25 countries, has further proved as the ASEAN's most comprehensive trade show for pump & valve with agriculture, plantation and maritime industry.



Date: 01-02 August 2024

Venue: NDMC Convention Centre, New Delhi, India

Website: worldwatersummit.in

The summit will explore synergies between water security and economic prosperity, focusing on finance and technology to deliver innovative water solutions for industries and utilities. It will harness the collective intelligence of stakeholders, including public and private water utilities, technology providers, financiers, industrial end-users, and associations. Attendees will exchange knowledge and the latest technologies, guided by visionary speakers. The event aims to foster collaboration across sectors like water, agriculture, food, beverage, and sanitation. Participants will network, share best practices, and explore solutions to drive efficiency and sustainable growth in water management. This summit offers invaluable insights and connections, inspiring innovative thinking and strategies for the future of water security and economic prosperity.

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19th EVERYTHING ABOUT WATER EXPO SOUTH ASIA'S LARGEST WATER EXHIBITION AND CONFERENCE 2024

Where the Water Community Comes Together

The 19th EverythingAboutWater Expo 2024 stands as a remarkable and all-encompassing annual event in India, spotlighting cutting-edge technologies and solutions within the water sector. This event serves as an exceptional gateway for stakeholders worldwide to immerse themselves in the expansive and dynamic realm of the Indian Water management Industry, facilitating the exchange of business opportunities, networking, and the exploration of innovative Water solutions.

Date: 10 - 12 September 2024

Venue: IICC, New Delhi

Website: [//www.eawaterexpo.com](http://www.eawaterexpo.com)

India is currently on a trajectory towards severe water stress, with projections indicating a critical situation by 2025. The rapid pace of Industrialization and the burgeoning population have significantly widened the gap between water supply and demand, a matter of deep concern for both the Central and State Governments. Within the framework of the 19th Everything About Water Expo 2024, unparalleled business prospects will emerge for both domestic and international players in the Water Industry. Attendees will have the opportunity to gain valuable insights, discover future trends, and navigate the evolving landscape of the Indian Water market.

WATER CANADA SUMMIT

The Water Canada Awards recognize individuals, projects, and technologies that demonstrate a strong commitment to improving the quality of the Canadian water sector. Join us for an unforgettable evening of celebration, laughter, and recognition at the 2024 Water Canada Awards and Improv Show! Mark your calendars for this year's most anticipated event, where we combine the recognition of Canadian water leaders with the spontaneity of improvisational comedy.

Celebrate the achievements of outstanding contributors in the water industry while enjoying an entertaining and engaging performance. This unique event not only honors the hard work and dedication of those making a difference in the Canadian water sector but also provides a fun and relaxed atmosphere for networking and community building. Don't miss out on this extraordinary night that blends the best of both worlds—honor and humor.



Date: 13 August 2024

Venue: Toronto, ON

Website: watersummit.ca

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CONFERENCE

The conference program will include internationally renowned keynote speakers encompassing experiences, challenges and solutions from around the world. The conference is structured into 4 sessions and 2 days training programs, spread over two days, focusing on specific theme, besides the inaugural and valedictory session.

- **GLOBAL FORUM: BEST PRACTICES**
- **INDUSTRIAL WATER FORUM**
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TRAINING

EA Water Master Class on Water Treatment & Recycling

EverythingAboutWater training program equips participants with the special expertise, technical knowledge and skills they need to tackle complex Waste Water Treatment & Recycling challenges, these trainings has been attended by over 25,000 + delegates.

- **INTRODUCTION OF WASTEWATER TREATMENT**
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and many more...

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Earth Water Foundation

7, Khullar Farms, Mandi Road, Sultanpur, New Delhi 110030, India

E: enquiry@eawater.com, W: www.eawater.com



19th EVERYTHING ABOUT WATER EXPO

SOUTH ASIA'S LARGEST WATER
EXHIBITION AND CONFERENCE **2024**

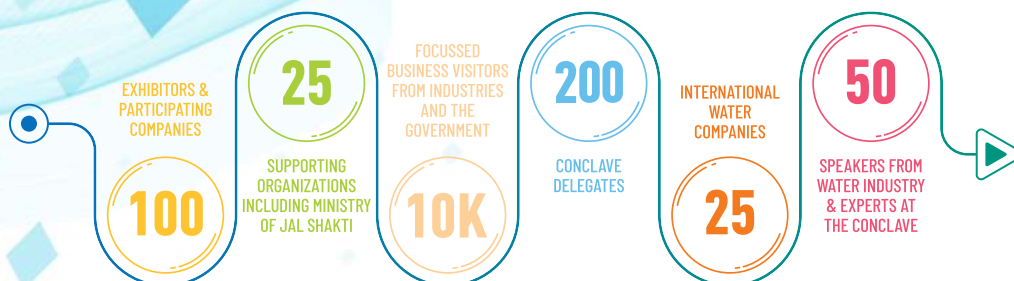
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