

REG. NO: DELENG/2001/3092

SEPTEMBER 2024 | ₹ 800 | USD \$20

WWW.EAWATER.COM



The Power of Knowledge

EVERYTHING ABOUT WATER

India's First Water eMagazine: www.eawater.com/eMagazine

Follow us on: [f](#) [t](#) [G+](#) [i](#) [in](#) [v](#)



DIGITAL WATER AND MONITORING

The Past, Present, and Future of Water Quality Analysis

The Game Changer is Here!

900 Series



Conductivity, Resistivity, TDS,
pH, ORP, Salinity, ISE, Flow,
Pressure, +more with Touchscreen LCD



www.myronl.com
760-438-2021





YOUR PARTNER FOR SUSTAINABLE SOLUTIONS

ELEVATING WATER MANAGEMENT

SWAS SYSTEM



Steam & Water Analysis Systems

ANALYZER & CONTROLLER



Multiparameter Controller



Smart Controller

SENSORS



COD, BOD & TSS Sensor



Chlorine Sensor



Turbidity Sensor



Ammonium Sensor



pH Sensor



Conductivity Sensor



Turbidity / Chlorine Analyzer

Knick >

SENSORS & TRANSMITTER



pH Sensors



Conductivity Sensors



Oxygen Sensors



Portable Analyzer



Transmitter

AXIS SOLUTIONS PVT. LTD.

Plot No. 107-112, Road No.6, GIDC Kathwada, Ahmedabad-282430, Gujarat, India.
Tel. : +91792290 0860/61 | Fct. : 9925001633 / 9909906354
info@axisindia.in | www.axisindia.in

IN THIS EDITION

REGULARS

- 04 Editorial Stream**
- 06 National Water News**
- 28 Global Water News**
- 33 Subscription Card- EverythingAboutWater**
- 72 The Ozone Page – Column**

In Depth:

- 46 Treatment Technologies for Poly- and Perfluoroalkyl (pfas) Substances in Water and other Wastes**
Dr Mayur J. Kapadia, GNFC Ltd.
- 50 Unlocking the Potential of Digital Water and Monitoring in Water Management**
Badusha KS, SmarterHomes Technologies Pvt. Ltd
- 52 Leave this World Better than you Found it**
Dilip Yewalekar, Jain Irrigation Systems Ltd.
- 56 Innovative Digital Water Solutions for Effective Water Management in Smarter Cities**
Raveendra, Water Utility Indo-region

Case Study:

- 58 Mott Macdonald Bentley Standardizes Phosphorous Removal Schemes, Delivering Infrastructure and Intelligence Benefits to the U.K. Water Industry**
Paul Rotter, Bentley
- 60 Eil Tackles Design for the Largest Underground Energy Storage Facility in India**
Seequent
- 62 Urgency Meets Innovation: Tech's Role in Resolving Water Crisis**
Kanishka Chatterjee, The/Nudge Institute
- 64 Indian Packaged Water Market: Rising in the Backyard**
Vigneshkumar Dhandapani, Yugadhya Mathuria, Avalon Consulting

Tech 2.0:

- 66 Monitoring Polluted Highway Runoff. A Modern Environmental Solution**
Lalit Mohan, Flexim Flow India

- 68 Regenerated Resins for a Greener Future**
Olivier Estienne, Veolia Water Technologies
- 70 Transforming Urban Landscapes With Digital Water Solutions Andrevolutionizing Smartcities**
Mandar Vaijanapurkar, Danfoss India Region
- 73 UNWIND**
- 76 Event Calendar**
- 78 Baywatch**
- 74 Tender News**
- 80 Advertiser's Index**





SEPARATION

OPTIMAL MECHANICAL DEWATERING TECHNOLOGY FOR WASTEWATER TREATMENT

ANDRITZ SIDEBAR FILTER PRESSES

THE RIGHT SOLUTION FOR EVERY DEWATERING CHALLENGE

Is your wastewater treatment plant ready for the toughest challenges ahead?

ANDRITZ offers a wide range of filter presses with sidebar technology, available in sizes up to 2,000 x 2,000 mm and an area of approximately 1,300 m², with filtration pressures ranging from 7 to 30 bar. ANDRITZ will provide the right filter plates, cloths, and other components to achieve the exact degree of dewatering required.

Benefits at a glance:

- High throughput and filtrate purity
- Low power consumption
- Operator-friendly design
- Easy maintenance
- High operating availability and reliability
- Upgradable volume and filtration area
- Options from manual to fully automatic operation

Make the best use of your ANDRITZ filter press with full optimization of the dewatering process using the ANDRITZ

automation solution — the Metris addIQ control system. This modular, PLC-based system integrates all our extensive operational, troubleshooting, and startup experience into one tailored automation solution to maximize the performance of your filter press.

Explore our range
of solutions



ENGINEERED SUCCESS

ANDRITZ TECHNOLOGIES PVT. LTD. / Chennai 600124 / India / separation.in@andritz.com / andritz.com/separation

ANDRITZ

**Earth Water Foundation**

7, Khullar Farms,
Mandi Road, Sultanpur,
New Delhi 110030, India

www.eawater.com

MANAGEMENT

Managing Director & Group Editor
Sunil Ghorawat

BUSINESS HEAD

Vice President
Nisha Aggarwal

EDITORIAL INCHARGE

Associate Editor
Simran Arora

MARKETING & OPERATIONS

Manager: Rahul Mourya

SALES

General Manager
Sanjay Menani

PUBLISHER

Earth Water Foundation
7, Khullar Farms,
Mandi Road, Sultanpur,
New Delhi 110030, India

**For editorial contributions /
press releases,
write to:**

editor@eawater.com

For advertising enquiries, write to:

enquiry@eawater.com

**For magazine & e-newsletter
subscription,**

write to: enquiry@eawater.com

Disclaimer: All rights reserved. No part of this publication may be reproduced in any form or by any means, whether electronic, mechanical or otherwise including photocopying, recording or any information storage without prior written consent of the publisher.

While every attempt is made to ensure the accuracy of the information contained in the magazine, neither the publisher nor the author accept any liability for errors or omissions. Opinions expressed in this publication are not necessarily those of the publisher or the editor.

All the images and news articles have been taken from leading online sources through secondary research.

DIGITAL WATER AND MONITORING: TRANSFORMING WATER MANAGEMENT FOR A SUSTAINABLE FUTURE

Dear Readers,

Welcome to the September edition of EverythingAboutWater Magazine, where we explore the digital transformation sweeping the water industry. As the demand for efficient water management grows, digital technologies are revolutionizing how utilities and industries monitor, manage, and optimize water resources. This edition focuses on the latest advancements in digital water and monitoring systems that are set to reshape the future of the water sector.

In this issue, we dive deep into the role of data analytics, IoT (Internet of Things), and smart sensors in providing real time insights into water quality, distribution, and consumption. We explore how AI and machine learning are being applied to predict system failures, reduce energy consumption, and enhance water conservation efforts. Furthermore, this edition highlights the integration of cloud computing and advanced monitoring platforms that enable more efficient and transparent decision-making processes.

Through comprehensive articles and case studies, we examine how utilities and industries are leveraging these technologies to improve water distribution networks, reduce water losses, and respond to issues like leaks and contamination with unprecedented speed and accuracy. Additionally, we discuss how digital water technologies are empowering communities to monitor and manage their own water usage, fostering sustainable practices at the grassroots level.

This issue provides valuable insights for water professionals, policymakers, and anyone invested in the future of sustainable water management. As we embrace digital water solutions, we envision a more resilient and adaptive water infrastructure capable of meeting the needs of a rapidly changing world.

Thank you for joining us as we explore the exciting possibilities of digital water and its role in creating a sustainable water future. We hope the innovations and success stories shared in this edition inspire progress and collaboration in the global water community.

Thanks & Regards,

Simran Arora

Associate Editor

EverythingAboutWater Magazine



WE CLEAN WATER WE ALSO COOL WATER

IN COLLABORATION WITH

Jumag-SX, Belgium

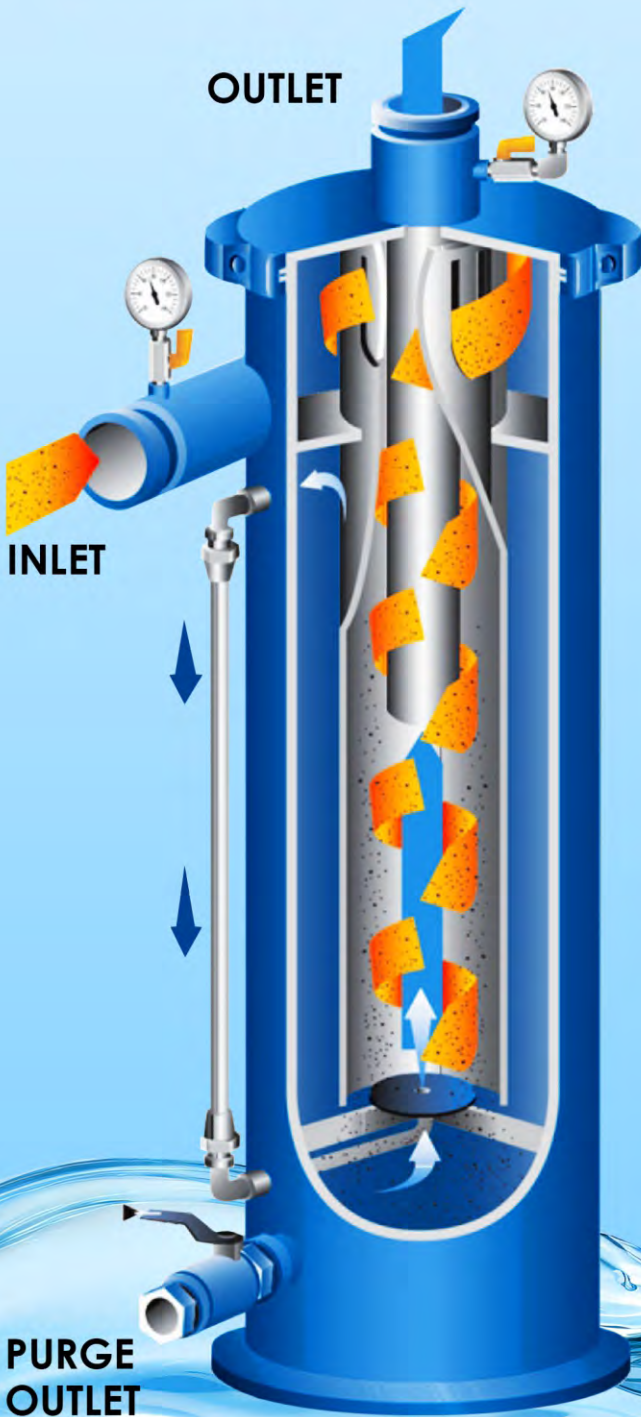
EnvioSep CYCLONE SEPARATOR

Benefits of using EnvioSep

1. Highly efficient for particle and suspended solid removal
2. Available in different materials for wastewater, seawater, river water and industrial process water etc.
3. Economical: both in CAPEX and OPEX
4. Reduces chemical consumption
5. Easy to Install in new and existing systems in place of sand filters
6. Prevents wear, clogging and damage to vital instruments and equipment

Industrial Applications

1. Water and wastewater treatment
2. Power plants
3. HVAC
4. Iron and steel industry
5. Oil refineries
6. Forging and metal casting
7. Vehicle wash stations



MM Aqua, Behrampur Road, Khandsa, Gurgaon 122001 (Haryana) India
Ph: +91 33 3001 9000, email: info@mmaqua.in

NATIONAL W

DROPLETS

Samir Surlaker Conferred Lifetime Achievement Award

NWC 2024), Mr. Samir Surlaker, Director, Assess Build Chem Private Limited, was honoured by the Waterproofers Association of India (WAI) by conferring him with the most coveted “Lifetime Achievement Award” at Le Meridien Gurgaon, on 26th September 2024.

This award was presented to Mr. Surlaker for his contributions to the fields of Concrete Technology, Construction Chemicals and above all to Waterproofing, Repair and Rehabilitation. The citation to his award further states; “As a mentor to hundreds of waterproofing professionals, Mr. Surlaker has shared his vast knowledge and experience, inspiring many to reach new heights in their careers. His leadership and vision have guided the industry toward adopting modern, effective solutions for waterproofing challenges.”

Mr. Samir Surlaker is a Civil and Structural Engineer from VJTI with over 45 years of international experience in Concrete, Construction Chemicals, Concrete Repair & Protection, Injection Systems, Waterproofing, etc. across Europe, Asia & India. Mr. Surlaker pioneered the cause of Manufacturing of Construction Chemicals in India, with a German JV in the mid 1980s.

He co-authored Handbook of Advanced Concrete Technology, ICI Handbooks on admixtures, waterproofing and industrial floorings. He is member of the Bureau of Indian Standards (BIS) and the IRC B-8 Committee for Repairs and Rehabilitation of Bridges. He is the chairman of CIDC Codes Committee for Waterproofing, Repairs and Rehabilitation.



Parastarai's Water Revolution: Chhattisgarh Village Leads Fight Against Drought

The village has successfully transformed its agricultural practices, rejuvenated groundwater levels, and set an example for neighbouring regions through its proactive initiatives.

Parastarai, a small village nestled in Chhattisgarh's Dhamtari district, has emerged as a trailblazer in water conservation, offering a blueprint for sustainable farming amidst rising drought concerns.

The village has successfully transformed its agricultural practices, rejuvenated groundwater levels, and set an example for neighbouring regions through its proactive initiatives.

Facing severe groundwater depletion, farmers of the village cut back on paddy cultivation, limiting it to a single annual crop, and instead embraced pulses and oilseed crops, which require significantly less water. This innovative shift in crop rotation, paired with the “Jal-Jagar” (Water Awakening) campaign, has not only revitalised the land but also replenished underground water reserves, breathing new life into the drought-stricken region.

From Crisis to Conservation In 2022, a survey by the Jal Shakti Mantralaya listed the Dhamtari district among 150 regions prone to severe groundwater depletion. Ironically, despite being surrounded by four major dams, including the Gangrel Dam, intensive paddy farming had exhausted underground water resources. In response, the BJP-led state government pushed for sustainable farming solutions encouraging farmers to adopt less water-intensive crops and new irrigation practices.

Chhattisgarh, known for its high Minimum Support Price (MSP) for paddy, faced a delicate balancing act: supporting farmers while addressing water scarcity. Parastarai farmers took up the challenge of shifting to crops that are both environmentally and economically viable.

ATER NEWS

Sharing the experiment, Sarpanch Parmanand Adil said, “We realised pulses and oilseeds offered better returns with lower water consumption. This change was necessary for the survival of our land and future generations.

”Community Led ChangeThe success of Parastarai extends beyond crop choices. In a landmark move, villagers implemented strict fines to discourage paddy cultivation during the Rabi season with penalties reaching Rs. 27,000 per acre. This enforcement has prevented excessive water usage and thereby protected neighboring fields, allowing pulses and oilseeds to thrive.

The village has also embraced environmental sustainability by participating in the “Ek Ped Maa Ke Naam” tree-plantation drive. Under the campaign, thousands of saplings have been planted, and existing trees are numbered and preserved under a unique community initiative. Plastic usage has been banned entirely; further cementing Parastarai’s commitment to conservation.

Recognition and International Attention As a testament to the village’s achievements, the Dhamtari district will host the prestigious International Water Conference, Jal Jagar Maha Utsav, on October 5th and 6th at the Ravishankar Reservoir, also known as Gangrel Dam. The event will showcase the remarkable strides taken by Parastarai and similar villages in tackling water scarcity through sustainable farming and community cooperation.

Dhamtari Collector Namrata Gandhi praised the village’s endeavour, stating, “Parastarai’s efforts have not only revived groundwater levels but also provided a model for other villages to emulate. Their work is a powerful example of how communities can come together to solve pressing environmental challenges.

”The conference will feature discussions on water conservation strategies, documentary competitions, and exhibitions that highlight grassroots efforts in water management. It will also include a special focus on industrial contributions to water conservation, along with thrilling water-themed events for children.

A Model for The FutureParastarai’s success story has resonated across the region, inspiring neighbouring villages like Ranwa, Khartuli, and Bagtarai to adopt similar water-saving measures. Through community-driven efforts, the village has become a symbol of resilience and innovation in the fight against drought. Its proactive approach not only protects its water resources but also strengthens its agricultural economy, offering a powerful lesson for other drought-prone regions.

Jal Jagar Maha UtsavAt a time when water scarcity threatens both livelihood and the environment, Parastarai’s pioneering efforts showcase how local action can lead to transformative change. By embracing sustainable farming, enforcing community-led water conservation measures, and committing to reforestation, the village has become a beacon of hope in Chhattisgarh’s ongoing battle against drought. As Parastarai prepares to share its

DROPLETS

ADB approves \$100 million loan to support Sri Lanka's water supply and sanitation

The Asian Development Bank (ADB) has approved a \$100 million policy-based loan to support Sri Lanka’s water supply and sanitation sector reforms. The ADB on Wednesday stated that the approved loan will help to enhance the country’s resilience to climate change impacts and promote long-term sustainability.

It further highlighted the Water Supply and Sanitation Reform Program, composed of two subprograms of USD 100 million each. It will contribute to a more resilient and sustainable delivery of water supply and sanitation services. As per the ADB, subprogram 1 will establish policies and strategies nationally and for the National Water Supply and Drainage Board (NWSDB), while subprogram 2 will support the implementation of reform actions and guidelines. “Efficient delivery of safe and reliable water supply in Sri Lanka is limited by fragmented water resources management and exacerbated by climate change. This program will not only strengthen mechanisms to ensure adequate access to safe water but also address governance and sustainability challenges of the sector that will enable the participation of the private sector,” said Pedro Almeida, Senior Urban Development Specialist. The water resources management in Sri Lanka is facing longstanding challenges such as unbalanced allocation between agriculture and drinking water, inadequate climate change consideration in planning and development, involvement of several agencies at the national and regional level, and impacts from unplanned land use and deforestation. As per the ADB, the program comes with USD 800,000 of technical assistance grant that will provide capacity and advisory support to the Ministry of Water Supply and Estate Infrastructure Development’s (MWS) and NWSDB for the formulation, deployment, implementation, and monitoring of the reform initiatives in the next subprogram. ADB’s Technical Assistance Special Fund will also cover USD 500,000 of the amount, while the Water Innovation Trust Fund, under the Water Financing Partnership Facility administered by ADB, will finance USD 300,000. ADB was established in 1966 and it is owned by 68 members, 49 are from the region.

journey on the international stage, it stands as a testament to the power of collective will and innovation, offering valuable lessons for regions grappling with similar challenges.

Union Minister Shri C.R. Paatil chairs 12th Meeting of Empowered Task Force on Ganga Rejuvenation

The 12th meeting of the Empowered Task Force (ETF) on Ganga Rejuvenation was chaired by Minister of Jal Shakti Sh. C. R. Paatil, in the presence of MoS, Dr. Raj Bhushan Choudhary. Senior officials, including Sh. Ashok K. Meena OSD, Department of Drinking Water and Sanitation, Sh. Rakesh Kumar Verma (AS), Sh. Rajeev Kumar Mital (DG), Executive Directors, and representatives from Ministry of Power, Ministry of Tourism, Ministry of Housing and Urban Affairs and Ministry of Environment Forest and Climate Change. The meeting was also attended by Sh. Anurag Srivastava, Principal Secretary State Government of Uttar Pradesh; Sh. Sunil Kumar Yadav Additional Secretary State Government of Bihar, Sh. Shailesh Bagauli Secretary, State Government of Uttarakhand Sh. Sunil Kumar, Principal Secretary State Government of Jharkhand and Ms. Nandini Ghosh Project Director SPMG West Bengal

.Director General NMCG, Sh. Rajeev Kumar Mital gave a detailed presentation on various issues and briefed the Minister about the progress made since the last meeting.

During the session, a comprehensive action plan for the rejuvenation of River Ganga was discussed. Key topics included progress under the Namami Gange program, with a special focus on the reuse of treated water, biodiversity conservation, remediation of polluted river stretches, and the implementation of the River Action Plan and natural farming. The Minister called for a unified approach among stakeholders to closely monitor and evaluate the progress of Ganga-related projects, stressing the need to preserve the sanctity of the sacred river through dedicated conservation efforts. Rural and urban sanitation efforts have a big role in river cleaning and are directed to complete the targets for creation of infrastructure in a time bound manner.

- All the State Government should complete the ongoing projects timely and expedite the submission of Detailed Project Reports for the polluted stretches.
- State Governments should focus on rural sanitation and ensure that all the villages are declared ODF plus status and get the required verification done.
- State Governments should map all the Nullahs/drains flowing through the villages into the river and send a report to NMCG.

- The O&M of the STPs should be monitored carefully.
- Complete coverage for online monitoring should be ensured by installation of Online Continuous Emission Monitoring Systems (OCEMS) in all the STPs and connecting it to Platform for Real-time Monitoring of Yamuna and Ganga (PRAYAG) in NMCG.

The Minister for Jal Shakti directed state Governments to assist NMCG in completing the pollution abatement efforts as under to take river cleaning effort to next level:

Shri Paatil emphasized the spiritual connect of the river Ganga in the country and directed that tourism potential along the banks of this sacred river should be harnessed. This will develop the economy of the region and also give a boost to infrastructure.

- The Minister Jal Shakti emphasized on reuse of treated water and mentioned that there is a need for reuse of treated water and the same should be considered as an important resource. The reuse should be promoted and all possible options should be looked into.
- He mentioned that a National Framework for Reuse of Treated Water has been released by NMCG and directed that all the states should develop/update their framework aligned to the national framework. He directed that the Ministry of Power should ensure and promote reuse of treated water in the sector. The economics of reuse would need to be relooked into considering the cost of using fresh water in the sector.
- It emerged in the meeting that reuse in construction and other sectors would also be looked into.

Shri Paatil also emphasized that Urban River Management Plans provide a comprehensive approach to river rejuvenation efforts at the city level and these should be mainstreamed to improve the health of urban rivers. He emphasized that the River City Alliance (RCA) should focus on ensuring co-learning amongst the river cities and should act as a platform for resolution of river related issues. He appreciated the concept of Smart Lab for Clean Rivers which is being developed with Danish collaboration and IIT (BHU) and would help in small river rejuvenation efforts in the country.

The Minister stressed upon need for adopting natural farming practices along the Ganga basin as it would help in river rejuvenation. Ministry of Agriculture mentioned that they would support this initiative of NMCG and will actively collaborate to take this initiative forward. An action plan would be prepared to upscale the activities under Natural Farming with a focused approach.



Confederation of Indian Industry



WATER & WASTE EXPO 2025

20-22 February | New Delhi, India

LEADING
FAIR FOR
WATER,
SEWAGE,
WASTE &
RECYCLING



3000+

Visitors

100+

Exhibitors

2000+

Exhibitor
Space (SQMS)

128+

Years of
Experience

B2B

Meetings

**Product
Launches**

Start-up Zone for Companies

www.watersolidwaste.in

Join us as we bring together stakeholders, innovators, and policymakers to pave the way for a cleaner, greener future and create sustainable solutions

REGISTER NOW



For further details, please contact

Mr. Amit Sharma | M: +91 98183 91920 | E: amit.sharma@cii.in

As an institutional development initiative, it was decided to have a clean Ganga workshop jointly by Department of Drinking Water and Sanitation and NMCG to sensitize the DGCs about the initiatives. The Minister emphasized the collaborative efforts by all the stakeholders in furthering the cause of river rejuvenation and mentioned that ETF provides a platform for focused deliberation on the river related issues. He mentioned that all the stakeholders would work together to achieve the targets and goals set by Hon'ble Prime Minister for taking the Ganga river rejuvenation efforts to next level and make it a model to look up to.



MEIL Signs MoU with Maharashtra Government for Development of 4000 MW Pumped Storage Hydro Project

Mumbai: The Hyderabad-based Megha Engineering & Infrastructures Limited (MEIL) has signed a Memorandum of Understanding (MoU) with the Department of Water Resources, Government of Maharashtra, to develop two prominent Pumped Storage Projects with a total capacity of 4000 MW, the Kamod Pumped Storage Project in Nandurbar and the Ghosla Pumped Storage Project in Chhatrapati Sambhaji Nagar.

It is noteworthy that MEIL is executing its first pumped storage hydro projects under the Build-Operate-Maintain (BOM) method. These two projects will involve an estimated investment of Rs. 21,100 crore and are expected to generate employment for approximately 2,500 people. MEIL plans to complete the Ghosla Pumped Storage Project within three and a half years, while the Kamod Pumped Storage Project is expected to be completed in five years.

The two Pumped Storage Projects are off-stream in nature and the projects are planned to provide a minimum of 6 hours of energy storage on a daily basis.

A powerhouse equipped with reversible pump turbines, generators, and other ancillary systems will be installed between the two reservoirs, interconnected through a water conductor system. The reversible turbines will pump water during non-peak hours and generate power during peak demand. Water for the projects will be drawn from existing reservoirs or dams for initial filling and replenished annually to compensate for losses due to evaporation and seepage.

Pumped Storage Projects are recognised for their cost-effective energy storage, grid management, frequency regulation, and integration with renewable energy sources.

The MoU signing event was attended by Maharashtra Deputy Chief Minister Devendra Fadnavis, who is also the Power Minister and Deepak Kapoor, Additional Chief Secretary of the Water Resources Department and MEIL was represented by company President R.V.R. Kishore, along with Girish, Ravi Kiran, and Sameer Jha.

"These projects will not only address Maharashtra's energy needs but also drive the state's development. We are proud to contribute to national progress by supplying power through the grid across India," said Kishore.



Secretary (Water Resources) reviews preparedness of Special Campaign 4.0; 400 sites identified for Intensive Cleaning Efforts

Secretary, Department of Water Resources, River Development & Ganga Rejuvenation (WR, RD, GR), Ministry of Jal Shakti, Ms. Debashree Mukherjee, chaired a comprehensive review meeting for preparedness of the Special Campaign 4.0, on 27.09.2024. The campaign is part of the government's broader initiative to reduce pendency, ensure cleanliness and sanitation, in Government buildings and public places.

About 400 sites have been identified for cleaning activities under



PORT DEVELOPMENT MEA FORUM

ADVANCEMENTS IN DEVELOPING SMART AND SUSTAINABLE
PORT INFRASTRUCTURE FOR STRENGTHENING MIDDLE EAST
& AFRICA'S MARITIME PORTFOLIO

21-22
OCTOBER 2024

MOVENPICK GRAND AL BUSTAN DUBAI
UNITED ARAB EMIRATES



SCAN QR CODE
TO KNOW MORE

COLLOCATED WITH

**ROADS
BRIDGES
TUNNELS**
MENA CONFERENCE

www.portdevelopmentmea.com

ORGANIZED BY



the Department and its organisations across the country. A detailed action plan for each of the identified sites has been developed, with tasks including waste segregation, disposal of hazardous materials, and long-term monitoring to ensure the cleanliness is maintained.

During the review, Ms Mukherjee expressed satisfaction with the progress made and emphasized the need for accelerated efforts at these locations. All the identified sites, which include public spaces, industrial areas and water bodies should undergo cleaning operations at a war footing, ensuring swift and thorough removal of waste, debris, and pollutants. Special focus may be given in carrying out cleanliness campaigns in areas where the footfall is high like River Ghats, Dam sites, residential complexes, etc. Adequate media publicity of activities undertaken during the campaign including on social media handles will be given during the campaign period by all the organisations.

Organizations wise targets were examined in the meeting. Secretary also instructed that 'Swachhata Mitras', who may be third party officials from Department and its organisations, may be appointed to randomly check the cleanliness campaign carried out in other organisations of the Department. The identified sites were flagged based on their environmental impact, level of pollution, and their importance to local communities.

Ms. Mukherjee reiterated the Department's commitment to transforming these locations into clean, hygienic areas that reflect the national goal of maintaining a clean and sustainable environment. Similarly, emphasis was given in the meeting for reducing the pendency under various categories.

Union Jal Shakti Minister Shri C.R. Patil Champions Swachhata Efforts in Chhattisgarh, During Ongoing Swachhata Hi Seva 2024 Campaign

As part of the ongoing Swachhata Hi Seva (SHS) 2024 campaign, Union Minister for Jal Shakti, Shri C.R. Patil visited the Rajnandgaon district of Chhattisgarh today. His visit was aimed at observing the significant progress and implementation of various sanitation and water conservation initiatives under the Swachh Bharat Mission Grameen (SBM-G), reinforcing the importance of sustaining cleanliness efforts in rural India.

The ongoing Swachhata Hi Seva (SHS) 2024 campaign, with its theme of 'Swabhaav Swachhata, Sanskaar Swachhata', is being held from 17th September to 1st October. The campaign will be culminating with Gandhi Jayanti on 2nd October, which is also the 10th anniversary of the Swachh Bharat Mission. The SHS campaign focuses on behavioural change and community participation to maintain cleanliness and sanitation across India.

In his opening address, the Shri Patil highlighted, "Under the inspiring leadership of Prime Minister, Shri Narendra Modi, we are entering a new chapter in the Swachhata journey. As we approach 2nd October, a day marking 10 years of the Swachh Bharat Mission, we should all do our bit by participating in Shramdaan in our villages and towns. Our collective efforts over the past decade have transformed the sanitation landscape of India. Chhattisgarh, like the rest of the country, has played a pivotal role in this transformation, and today I urge everyone to continue their dedication as we move forward with renewed commitment and energy.

"Key SHS 2024 Activities in Chhattisgarh:

- 5,631 Cleanliness Target Units (CTUs) planned, with 2,071 transformed CTUs involving 1.3 lakh volunteers.
- 29,951 Swachhata Mein Bhagidari events, with over 10.48 lakh participants, fostering community ownership of local sanitation systems.
- Over 32,000 sanitation workers benefited from health camps, and 26,000 sanitation workers were provided with PPE kits through 2,332 SafaiMitra Suraksha Shivirs.

Chhattisgarh's Sanitation Progress:

- 67% villages declared ODF Plus Model.
- 73% villages have arrangements for Solid Waste Management.
- 94% villages have Liquid Waste Management systems in place.
- Chhattisgarh has achieved ODF Plus Model status for 13,033 villages, with a goal to declare all villages ODF Plus by December, 2024.

During the visit, Shri Patil witnessed firsthand the innovative waste-to-art installations created by the local community, the transformative impact of Cleanliness Target Units (CTUs), and the successful 'Ek Ped Maa ke Naam' tree plantation initiative. The 'Mission Jal Raksha' programme, aimed at water conservation, was highlighted with the Minister inspecting the percolation tank site in Barga village, showcasing local efforts to preserve and replenish water resources.

A notable highlight was the declaration of Rajnandgaon and Dongargaon blocks as ODF Plus Model blocks, underscoring the district's commitment to Sampoorna Swachhata and waste management.

The Union Minister also inaugurated the Faecal Sludge Treatment Plant (FSTP) in Baghara, which was a significant step towards sustainable waste management. He also visited the Plastic Waste Management Unit (PWMU) in Amlidih village, where he interacted with Swachhata Didis, sanitation workers leading local cleanliness efforts.

This visit by the Union Minister demonstrates the government's ongoing resolve to make the vision of a Sampoorna Swachh Bharat a

WaterLossAsia

19-21 Nov 2024

Exhibition & Conference:
19-20 Nov 2024

Workshop:
21 Nov 2024

Royale Chulan Hotel
Kuala Lumpur

Asian Perspectives on Water Loss Management & Carbon Reduction

www.waterlossasia.com



Conference

- Smart Water Networks
- Advanced Leak Detection
- Big Data and Analytics
- Artificial intelligence (AI)
- Best Practices in NRW Management
- Country Experiences
- Pipe Management
- Carbon Assessment and its impact on Water Losses
- NRW Reduction Plans



Workshop

- ▶ Carbon intensity and how it affects management of carbon emissions
- ▶ The benefits of remote monitoring on reducing NRW and Carbon Emissions
- ▶ Enlightenment by leak detecting smart meters
- ▶ Making Consumptions Dynamic & the Water Balance Smarter
- ▶ Best Practices in Water Loss Management – For Improved Visibility and Reduced NRW

Delegate & Visitor Registration Now Open



Exhibition



Networking

Proudly Sponsored By

We're excited to announce the sponsors of Water Loss Asia 2024! Visit their booths at the 2-day exhibition to explore cutting-edge technologies, network with industry leaders, and discover innovative solutions.

Platinum Sponsors



Gold Sponsors



For enquiries, please contact

PROTEMP EXHIBITIONS AND CONFERENCES SDN BHD (SSM No. 199901017179)

+60 3 6140 6666

+6012 231 5583

water@protempgroup.com



WaterLossAsia



waterloss-asia

Organised by



Supported by

Media Partners



permanent reality. The Swachhata Hi Seva 2024 campaign continues to unite communities in their mission towards a cleaner and more sustainable India.

PM Lauds Jhansi Women's Contribution to Water Conservation in 'Mann Ki Baat' Program

In his monthly radio address 'Mann Ki Baat' on Sunday, Prime Minister Narendra Modi once again highlighted Uttar Pradesh with a specific mention of the remarkable water conservation efforts in the Jhansi district.

He praised the women of Jhansi for breathing new life into the Ghurari River by preventing wastage of water and showcasing their commitment to addressing the country's water crisis.

Chief Minister Yogi Adityanath thanked PM Modi for recognising the efforts of the women from Self Help Groups (SHGs) in Jhansi, particularly in the water-scarce Bundelkhand region.

Modi acknowledged the extraordinary accomplishment of these SHG women, who, as 'Jal Sahelis', led a campaign to revive the dying Ghurari River. He marvelled at their initiative to construct a dam using sand-filled sacks to stop rainwater from being wasted and replenish the river. The initiative successfully alleviated the region's water crisis bringing joy to the community. He emphasised that where 'Nari Shakti' (women's power) enhances 'Jal Shakti' (water power), 'Jal Shakti' in turn strengthens 'Nari Shakti'.

The noteworthy efforts of these Jal Sahelis took place in Simrawari village, Babina development block, Jhansi. They worked tirelessly over six days of voluntary labour to construct the dam that revived the Ghurari River. Their initiative not only revived the river but also sent a powerful message to society. The water retained in the river now provides essential resources for local people, serving their bathing needs and providing drinking water for animals.

The Yogi government has undertaken water conservation efforts across Bundelkhand with unprecedented determination, overcoming numerous challenges. As a result, most households in Vindhya and Bundelkhand have now water connections. Under the Har Ghar Nal Se Jal Yojana, the government ensured tapped water supply for 95% of the households. Additionally, initiatives such as the reconstruction of village ponds, rainwater harvesting systems, and cleaning reservoirs have been implemented.

The Yogi government is also actively promoting women-led SHGs across the state.

In recognition to their contribution to water conservation, the 'Jal

Sahelis' have been honoured by the state and Central governments. These women continue to support government efforts in water conservation across Bundelkhand and play a vital role in raising awareness about the importance of preserving water resources.

Chief Minister Yogi Adityanath expressed his gratitude to Prime Minister Narendra Modi and congratulated the women who have become a source of inspiration for water conservation.

On his X handle, he wrote: "Prime Minister Narendra Modi's mention of the efforts made by the self-help group women of Jhansi, who became 'Jal Sahelis' to revive the dying Ghurari River, in his Mann Ki Baat program is a moment of pride for all of Uttar Pradesh. This recognition will undoubtedly infuse new energy into ongoing water conservation efforts. These 'Jal Sahelis', who have become a remarkable symbol of women's empowerment by constructing hundreds of water bodies, have set an exemplary standard for water conservation despite facing many obstacles. Heartfelt congratulations to these women who have become an inspiration for water conservation, and sincere thanks to the Prime Minister for his acknowledgment!"



Chennai Metrowater Initiates Steps to Improve Production Capacity in Minjur Desalination Plant

Production in the facility had declined steadily over the past one year owing to internal issues of the company operating it. Options, including serving notice to the company on the drop in water supply and initiating a study to assess factors affecting the operation of the plant, are under scrutiny to rectify the flaws and augment daily water distribution, say officials.

In a bid to address the dwindling water supply from Minjur desalination plant, Chennai Metrowater has initiated measures to improve production capacity in the facility and boost supply to north Chennai.



World Utilities Congress

Host



16 - 18 SEPTEMBER 2024 | ABU DHABI, UNITED ARAB EMIRATES

ENABLING A SECURE AND SUSTAINABLE UTILITIES FUTURE



12,000 +
UTILITIES PROFESSIONALS



90+
COUNTRIES REPRESENTED



180 +
GLOBAL EXHIBITORS



280 +
EXPERT SPEAKERS



110 +
CONFERENCE SESSIONS



1,400 +
CONFERENCE DELEGATES



BOOK
YOUR STAND



DELEGATE
REGISTRATION



VISITOR
REGISTRATION

www.worldutilitiescongress.com [f](#) [@](#) [X](#) [v](#) [in](#) #WorldUtilitiesCongress

Supported By



Exclusive Cooling
Partner



Strategic Insights
Partner



Knowledge
Partners

FROST & SULLIVAN



Host
City



Destination
Partner



Venue
Partner



Brought To
You By



The plant, which has a capacity to treat 100 Million Litres a Day, is now producing only 25 MLD as on Saturday. Officials said the water agency was now mulling over the possibility of taking over operation of the plant and boosting production to its original capacity.

Among the city's three desalination plants, the first one in Minjur was built on design, build, own, operate and transfer basis in 2010. The facility caters to nearly 12 lakh residents of north Chennai areas falling under Madhavaram, Manali and Tiruvottiyur zones.

It may be recalled that the water agency had entered into a bulk water purchase agreement with Chennai Water Desalination Limited, a consortium company of IVRCL Infrastructures Limited and Befesa, Spain.

Officials noted that production in the facility had steadily declined over the past one year owing to internal issues of the company, operating the facility. Options, including serving notice to the company on the drop in water supply and initiating a study to assess the factors affecting the operation of the plant, are under scrutiny to rectify the flaws and augment the daily water distribution.

To bridge the gap in supply to north Chennai, the water agency now diverts 15 MLD of water from Red Hills reservoir to the existing distribution network. The three zones in north Chennai have a water demand of 40 MLD.

Metrowater will soon call for bids to lay a dedicated six-km pipeline from Red Hills reservoir to Madhavaram booster station where treated water would be stored and sent to various localities in north Chennai. This pipeline would have a carrying capacity of 23 MLD and the ₹40-crore project would begin in January.

Similarly, another pipeline would be laid to link raw water between the reservoirs in Thervoy Kandigai- Kannan Kottai and Red Hills at a cost of ₹31 crore to augment water supply. A pipeline for a length of six km would be laid and interconnected with the existing network. Priority would be given for north Chennai areas, officials added.



Union Minister Shri C.R. Paatil presides over the Valedictory Session of the 8th India Water Week 2024 in New Delhi

Bhu-neer portal of CGWA for ground water regulation launched The Valedictory Session of the 8th India Water Week (IWW) 2024 was organized today in New Delhi, under the chairmanship of Union Minister for Jal Shakti, Shri C.R. Paatil, with the August presence of Minister of State Dr. Raj Bhushan Choudhary. Secretary (DoWR, RD & GR), Smt. Debashree Mukherjee delivered the welcome address during the session.

Shri C.R. Paatil delivered the valedictory address and expressed his appreciation for all the participants from around the globe as well as across the country. The Minister also acknowledged the tireless efforts for successfully organizing the event by the dedicated team of officers from the Ministry of Jal Shakti, its two Departments viz. DoWR, RD & GR and DoDWS and its various organizations viz. NWDA, CWC, CGWB, NIH, NMCG, NRCD, NWIC, CSMRS, CWPRS, WAPCOS etc. He expressed confidence that the collective deliberations and outcomes of the 8th India Water Week will go a long way towards addressing the unique water issues of India through a collaborative and innovative approach.

A brief on the 8th IWW 2024 was presented by Shri Rakesh Kumar Verma, Additional Secretary (DoWR, RD & GR), Ministry of Jal Shakti. He enumerated various important recommendations that emerged from the 8th IWW 2024 on the various facets of water sector viz. Collaboration & Cooperation for Water Security, Integrated Water Resources Development & Management, Challenges in Water Sector Infrastructure, Risk and New Approaches to Climate Resilience, Groundwater Sustainability and Management, Water Governance and Financing, Water related Disasters and its Management etc.

During the session, Bhu-neer portal of CGWA for ground water regulation was e-launched. Further important publications viz; National register of Major and Medium irrigation projects in India, Assessment of water resources in India, Compendium of sedimentation of reservoirs in India by CWC and Coffee Table book of Heliborne survey conducted by CGWB were also released during the session.

Exhibitor's awards were also given under four categories.

Category I- Best Central Ministry/Organization- CWPRS, Pune

Category II- Best State Government- Kerala

Category III- Best Industry- Ion-exchange India Ltd

Category IV- Best Startup- Blueverse India Pvt Ltd, Mumbai, Maharashtra

The event was inaugurated on 17th September, 2024 by Hon'ble President of India. Continuing with the same spirit of the last two days, Day-3 also showed great zeal and enthusiasm among participants

who turned up in large numbers.

An important part of the Day-3 of the event was Water Leaders' Forum in which seven sessions covering themes on partnerships on accelerating innovation in water sector; integrated flood management; partnership and cooperation for integrated water resources management; public private partnership in water sector; sustainable water management for industry & businesses; partnerships for climate action in water sector; circularity in waste water management were held with a lot of insightful deliberations amongst the panelists and participants.

Further, seven sessions of Water Conventions with three themes viz; water governance and financing, water related disaster and its management and challenges in water sector infrastructure were held with the active participation of stakeholders which offered a diverse and comprehensive perspective with a multifaceted approach and innovative ideas for the future highlighting current challenges in water management.

Two sessions of Practitioners' Forum were held today on the topics achieving universal access to drinking water in rural areas; synergizing actions for ecological sustainability and human wellbeing, with experts sharing their experiences and practical lessons.

A big attraction of Day-3 was the Startup Forum, which is a dynamic platform for innovative thinkers and private entrepreneurs in the water sector who presented Smart water tools and technologies; showcasing cutting-edge solutions across a variety of crucial areas of the water sector. In all nine startups presented their innovative solutions in the water sector.

Various Fora / sessions that started on Day-1 of the event with huge participation of delegates, experts, policy makers, industry, researchers etc. successfully concluded today.

The Exhibition, spanning 4,800 square meters and featuring over 143 exhibitors, has been a remarkable part of the entire event.



PMRDA annuls water pledge for new projects in 23 merged villages, and nearby areas

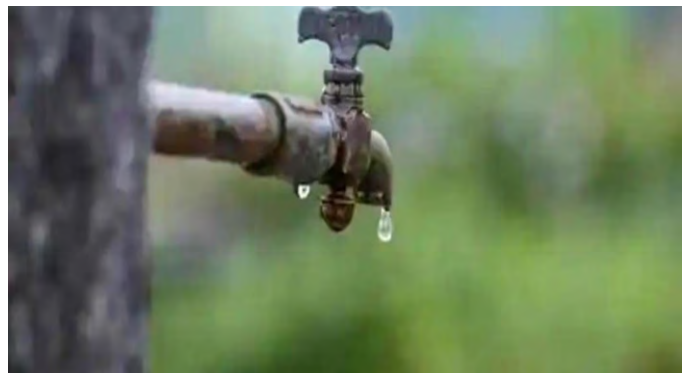
PUNE: While the Pune Municipal Corporation (PMC) is struggling to supply water to the 34 newly merged villages due to lack of supply network and insufficient drinking water, the Pune Metropolitan Region Development Authority (PMRDA) has been assigned the responsibility of supplying water to over 40 villages outside 5 km of the PMC limits within the PMRDA limits for new housing projects. As a result, the PMRDA has revoked the water supply commitment from developers for new housing projects.

PMRDA revokes water supply commitment from developers for new housing projects in 23 merged villages and areas outside 5 km of PMC limits.

PMRDA commissioner Yogesh Mhase on Monday issued a new circular cancelling the previous order that sought an affidavit from developers ensuring water supply to residents. The new directive stated that new constructions in the 23 newly merged villages and those outside 5 km of the PMC limits within the PMRDA limits will not need a water supply guarantee from local bodies.

The new order said that the PMRDA oversees around 814 villages where proposals for development permissions or occupancy certificates are submitted to the authority. To ensure availability of water in these villages, instructions have already been issued. Among these villages, 23 are now under the jurisdiction of the PMC.

It is then the PMC's responsibility to provide water and other necessary facilities to these villages. To support this, 75% of the development fees collected by the PMRDA from these villages is transferred to the PMC. The order further stated, "Additionally, outside 5 km of the PMC limits within the PMRDA limits, the concerned municipal corporation is



required to supply water. In light of these requirements, previous orders have been set aside and new directives have been issued. For the 23 villages within the limits of the Pune and Pimpri-Chinchwad municipal corporations as well as areas within 5 km of these municipal limits.

"Sunil Marle, director of town planning at PMRDA, said, "According to the state government directives, municipal corporations are responsible for supplying water in areas within 5 km of the municipal limits or within the PMRDA's jurisdiction. We are currently issuing building permissions for 23 villages. Developers no longer need to submit an affidavit from local bodies for water supply when applying for building permission. This rule now also applies to constructions outside 5 km of the PMC and PCMC limits within the PMRDA's jurisdiction." Prasana Joshi, superintendent engineer of the water supply department of the PMC, said, "We are already struggling to supply water to the 23 newly merged villages. How can we supply water to villages outside the 5 km limit of PMC?"

"The PMRDA order also stated that for other areas, cases seeking occupancy certificates that have been approved based on Gram Panchayat certificates or developers' water supply assurances will need to be submitted to the executive committee (EC) for guidance on further action. Additionally, proposals should be submitted to the engineering department for preparing water supply plans for these cases.

Projects under Yamuna Action Plan near completion; full capacity to be reached soon

Clean Yamuna Campaign gains momentum as YAP-III Projects near completion.

Three mega Wastewater Treatment Plants (WWTP) at Okhla, Kondli and Rithala about to complete.

Okhla, Kondli & Rithala wastewater treatment plants (WWTPs) projects are 96% 98% and 100% complete respectively.

Delhi's Wastewater problem to recede soon as Okhla, Kondli & Rithala

WWTPs near completion.

The quest for a clean Yamuna is gaining momentum as the three large wastewater treatment projects (WWTP) being developed by Delhi Jal Board under the Yamuna Action Plan-III are nearing completion. These three mega WWTPs in Okhla, Kondli and Rithala are already in advanced stages.

Okhla WWTP: State of the art infrastructure to make Yamuna clean Delhi Jal Board is upgrading and rehabilitating four phases of Okhla WWTP under the ongoing project. The massive project has a capacity of 564 MLD. The Okhla WWTP will treat wastewater in accordance with effluent standards of BOD – 10 mg/l, TSS – 10 mg/l, or better. Currently the project is 96% complete and will soon be fully operational. Okhla WWTP is Asia's largest and world's fourth largest WWTP which is being constructed to make the Yamuna River clean. The project will serve the large parts of Delhi including the South-Delhi area; treating the emanating wastewater. About 56.4 crore liters or 564-MLD wastewater channelized from sewer networks will be treated or cleaned daily at this plant. It will benefit around 40 lakh residents of the national capital. The rehabilitation and upgradation work of Okhla WWTP began on June 19, 2019.

At Okhla, for the first time in Delhi, UV technology has been employed in a WWTP ever to clean wastewater. This technique is commonly used in RO plants with a purpose of making the water potable/drinkable. Also, Okhla WWTP has also been developed with a unique design. The tank of the primary sedimentation unit of the WWTP has been designed in a rectangular shape instead of a circular one. Also, Lamella Filter has been used in this section of the plant. Due to these changes, the time taken for the treatment of wastewater will be reduced to half and this unit has also been developed in a very small space.

Kondli – Catering East Delhi Kondli: The WWTP project being developed in Kondli is of a capacity of approximately 214 MLD. The project is about 98% complete. It is being developed with effluent standards of BOD -10 mg/l, TSS – 10 mg/l or better under YAP-III with the objective of removing pollutants entering the waters of Yamuna in Delhi through wastewater. The project will cater the large area of East Delhi including Shahdara area and disallow any outfall of wastewater into Yamuna without treatment.

Rithala – No untreated wastewater to go in drains The Rithala Rehabilitation and Up-gradation project involves the development of 182-MLD capacity Wastewater Treatment Plant with effluent standards of BOD-10 mg/l, TSS – 10 mg/l or better. This project will cater to the large parts of North & North-West Delhi disallowing any sewage to enter the Najafgarh Drain or Yamuna untreated. This project is complete and already under the phase of trial run and commissioning. Although the WWTP projects faced challenges like delays in clearances, EPCA bans and Covid led restrictions, the concerted efforts has brought these mega WWTP projects to near completion. Many of the sewage treatment plants (STPs) in these projects are already functional and treating the wastewaters of Delhi.



www.eawater.com



**SOUTH ASIA'S NO. 1
WATER MAGAZINE**



BANNER ADS ON WEBSITE

Be Seen Where It Really Matters!!
Create the buzz in water market.

Advertise with us on our website:

www.eawater.com

and reach out to 5,000 readers daily!

EARTH WATER FOUNDATION

Email us on: enquiry@eawater.com, for further details.

The objective of the three big sized WWTPs is to ensure that the wastewater emanating from the households & industries of Delhi do not out-fall into the Yamuna River untreated. With the proper cleaning of wastewater, its re-use and release into the Yamuna River will not just axe pollution from the holy river but also help maintain the healthy ecological flow necessary to support aquatic life. The health of Yamuna is important to ensure the overall health of Delhi's environment. All three projects are nearing completion and will be fully commissioned & operational very soon.



iPUMPNET Unveiled by the Union Minister of Jal Shakti & Wins ET Infra Focus Award 2024 for Best Brand in Water Technology

The Hon'ble Union Minister of Jal Shakti, Shri C. R. Paatil, has unveiled iPUMPNET, a revolutionary solution developed indigenously by Pump Academy Private Limited, during the 8th India Water Week expo at Bharat Mandapam, New Delhi, on 17th September 2024. He was accompanied by Ms. Vini Mahajan, Secretary-Jal Shakti; Ms. Debashree Mukherjee, Secretary Water-Resources, River Development & Ganga Rejuvenation, along with other senior officials of the Ministry.



During his visit to the Pump Academy booth at the India Water Week Expo, the Hon'ble Union Minister of Jal Shakti was briefed about the iPUMPNET system, which shows great potential in making water pumping stations smart and responsive. This cutting-edge system harnesses the power of artificial intelligence (AI) and the Internet of Things (IoT) to enhance the efficiency of water pumping stations and promotes a smarter, more sustainable approach to water management.

With its advanced remote monitoring and control capabilities for pumping infrastructure, iPUMPNET revolutionizes crucial water asset management by improving efficiency in water distribution, wastewater management, and irrigation. The system boosts productivity by up to 35%, reduces energy use by up to 25%, minimizes water loss, cuts carbon emissions, and extends equipment lifespan by up to 50%, ultimately saving costs and enhancing sustainability.

Pump Academy Private Limited has been conferred with the prestigious Economic Times Infra Focus Award 2024, earning recognition as the Best Brand in Water Technology for its revolutionary solution, iPUMPNET. The award recognizes the company's innovative approach to water management and its significant contribution to the water infrastructure sector. It was presented during the ET Infra Focus Summit held in Delhi on September 19, 2024. This recognition underscores the company's commitment to developing solutions that address critical water management challenges while promoting sustainability and resource optimization.

Mr. Anil Sethi, the Founder Chairman of Pump Academy Private Limited, commented: "The advanced technology embedded in iPUMPNET has great potential to optimize water asset management across India. By leveraging AI and IoT, we are not just improving efficiency; we are paving the way for a more sustainable and water-secure future. This solution aligns perfectly with the government's vision for smart water management and could play a crucial role in addressing India's water challenges. We are elated by the appreciation from the Hon'ble Minister and look forward to contributing to the nation's water conservation efforts with technology interventions.

" He further said that: "We are deeply honoured to receive this prestigious recognition from the Economic Times. iPUMPNET represents our dedication to innovation in water technology. This award not only validates our efforts but also motivates us to continue pushing the boundaries of what's possible in smart water management. We believe that technologies like iPUMPNET will play a



Features:

- ▶ Free access
- ▶ Available online 24X7
- ▶ Fast delivery by e-mail
- ▶ Direct web links
- ▶ Print what you want
- ▶ Search by keywords
- ▶ Forward articles
- ▶ Share on social networks

NO MORE WAITING for the print copy to arrive
EverythingAboutWater E-Magazine is now live!

INDIA'S FIRST

water & wastewater
magazine

To Read & Subscribe for FREE visit www.eawater.com/eMagazine

crucial role in shaping a water-secure future for India.

Brief about Pump Academy: Pump Academy Private Limited was established with a mission to encourage innovation and leverage digital technologies to improve the efficiency of pump operation and maintenance in water utilities and industries. Pump systems contribute to approximately 20% of the world's electrical energy demand, and in certain applications, they account for upto 50% of electrical energy usage, being the largest consumers of electricity.

Pumping stations play a vital role in extracting and distributing water to meet the diverse needs of individuals, industries, and agriculture. The maintenance, energy consumption, and longevity of pumping stations are often overlooked. Recognizing this gap, Pump Academy has emerged as a pioneering organization, offering innovative solutions, iPUMPNET, to optimize pumping stations, extend their lifespan, improve operational efficiency, and reduce electrical consumption and carbon emissions. Pump Academy is revolutionizing the industry with its innovative approaches, setting a new standard in the optimization and management of pumping stations.

Rs. 14-crore Cauvery Riverfront Project Gets Govt. Nod

The maiden riverfront project for Trichy city proposed on the southern bank of Cauvery river passing along Odathurai Road has been approved by the municipal administration department. A detailed project report (DPR) completed by the city corporation has estimated the cost of the project at Rs. 14 crore. Apart from creating an open space for recreational amenities, the project will also indirectly prevent pollution in the river. The Cauvery river flows for a length of 16km. within Trichy corporation limits, including both northern and southern banks. On some banks including Odathurai, the local body has identified littering activity prevalent among residents and the floating population.



As the Cauvery river holds both cultural and economic importance, a master plan prepared for Trichy with projections for 2041 had suggested riverfront development for the city to tackle pollution and other non-conforming activities.

Taking the cue from the report, Trichy corporation identified a 250-metre-long stretch on the southern bank of the river between Thillainayagam bathing ghat on Odathurai road and the railway bridge across the river. About 60,000 square feet of unutilised area on the river bank will be put to use for the project.

The DPR has adopted the 'city of elements' plan by American urban planner Kevin Lynch for the project. Accordingly, seven components included are amphitheatre, kids' play area, bathing ghat, riverside terrace, planters with seatings, watch tower and sundial.

Fences will be installed throughout the banks abutting the riverfront area. "Width of the Cauvery river shall remain undisturbed. Rainwater accumulating in the open space will be discharged into the river," a senior official of Trichy corporation said.

A 30-foot-tall watch tower with safety barriers is planned in the riverfront area for visitors to view the rajagopuram of Srirangam temple, Thiruvanaikoil temple and Rockfort hillock temple complex. A riverside walking track, public toilet and a meditation zone are among other proposals planned in the riverfront space.

The corporation said that the proposed facility will benefit the densely populated Melachinthamani and Devathanam areas like the Uyyakondan canal front development in Cantonment. With the study completed, the municipal administration department will choose a relevant scheme to fund the riverfront proposal after technical scrutiny.

Schemes under Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) are also considered for obtaining funds. Making the project more environment-friendly, Trichy corporation has also drafted a plan to install a sewage treatment plant (STP) near the riverfront to re-treat wastewater discharged from residential and commercial areas in ward 15 into the river.

Bentley Systems Wraps Up Illuminate 2024 in New Delhi: Event Discusses Key Infrastructure Drivers to Accelerate India's Vision 2047

NEW DELHI – September 12, 2024 – Bentley Systems Incorporated

SEPTEMBER 2024



The only exhibition focusing on
Indian and Korean markets

KoINDEX With G-FAIR

Korea Industry Expo 2024

Nov. 21 (Thu) - **23** (Sat) **2024**

Yashobhoomi New Delhi India

HEALTHTECH

SMART TECH

LIFE STYLE

Beauty, Food

INFRASTRUCTURE

Construction, HVAC, Safety,
Smart city, Environment, mobility

Host



Ministry of Trade,
Industry and Energy



Ministry of SMEs
and Startups



GYEONGGI-DO

Goyang

Organize **KINTEX**



MESSE ESANG

kotra

Korea Trade-Investment
Promotion Agency

KBIZ Korea Federation
of SMEs

GBSA
Gyeonggi Business & Science Accelerator

ainglobal

XEXPORUM

the global leader in infrastructure engineering software, successfully concluded Illuminate 2024—New Delhi, part of the Bentley global Illuminate Series. This exclusive conference, held on September 10, 2024, brought together India's top infrastructure engineering decision-makers and industry experts to explore how digital transformation and next-generation technologies, like open AI-powered digital twins, can accelerate India's ambitious Vision 2047—the mission to become a fully developed and sustainable nation by 2047.

Inspiring Presentation and PanelsThe event opened with a compelling Welcome Address from Kamalakannan Thiruvadi, regional executive, South Asia at Bentley Systems, who framed the discussions around India's journey toward Viksit Bharat 2047. Thiruvadi was followed by Ananyaa Narain, vice president of Consulting at Geospatial World Consulting, who set the stage and led a thought-provoking presentation and panel discussion on the opportunities and challenges faced by the Indian infrastructure sector. On the panel, Narain noted India's need for an estimated USD 4.5 trillion in infrastructure investment by 2040, and how this would lead to opportunities in transportation, energy, and water management.

Keynote: Vision 2047 in FocusThe day's keynote, led by Dustin Parkman, vice president, Industry Solutions, Bentley immediately spotlighted the infrastructure technologies and lifecycle management needed to drive Viksit Bharat 2047, which is expected to turn India to a USD 30-trillion developed economy in about two decades for a projected 1.65 billion population. He emphasized the critical role of Bentley's infrastructure solutions in enabling India to meet its infrastructure goals through technological innovations that support urban and rural development, sustainable growth, and resilience.

Fireside Chat: Engineering Resilience in InfrastructureAn inspiring fireside chat on Engineering Resilience, moderated by Dhruva Mukhopadhyay, senior manager of Product Sales at Bentley Systems, was a key highlight of the event. Featuring Karl Howley, executive vice president of Seequent, and Dan Choudhary, senior manager at Bentley Systems, the panel focused on how open AI-powered digital twins and advanced technologies are helping to improve resilience in critical infrastructure projects across India. Real-world case studies and industry insights on ensuring stability and sustainability in civil engineering projects were shared, offering practical solutions for addressing the growing challenges of urbanization, climate change, and environmental impact.

Product Demonstrations and Industry TracksParticipants were given

an in-depth look at Bentley's latest digital infrastructure solutions through live product demonstrations, where Bentley showcased tools designed to advance infrastructure projects in Transportation, Water Infrastructure, Electric Utilities, and Airports. Industry-specific tracks provided an opportunity for deeper engagement:

Transportation: Attendees learned how digital twins are transforming transportation agencies' ability to turn data into actionable infrastructure intelligence.

Water Infrastructure: Experts discussed how IoT sensors, AI, and 4D analytics are revolutionizing water management systems across India.
Electric Utilities: Attendees explored the future of energy infrastructure and how data-centric, interoperable solutions are essential to achieving India's renewable energy goals.
Airports: Bentley's digital twin solutions for airports were showcased as key tools for enhancing operational efficiency and handling the projected rise in air travel demand.

Bentley's Impact on Vision 2047

Throughout the event, Bentley reinforced its commitment to supporting India's infrastructure evolution. Speakers Oliver Conze, senior vice president, Bentley Infrastructure Cloud, Bentley Systems and Amit Shrivastava, senior director, APJ Solution Engineering, Bentley Systems discussed ways to unlock the future of infrastructure with Bentley's digital twin technology. This session revealed how digitalization is transforming project delivery by speeding up timelines, cutting costs, and enhancing resilience across design, construction, and maintenance.

Reflecting on the event's success, Thiruvadi, stated: "Bentley Illuminate 2024—New Delhi brought India's most innovative infrastructure minds together to focus on the future. As the country moves forward on its path to becoming a fully developed nation by 2047, Bentley Systems is proud to be a key partner in driving sustainable, resilient, and technologically advanced infrastructure solutions."





India's first & the most read **WATER & WASTEWATER MAGAZINE**



ADVERTISE WITH US



SUBSCRIBE FOR FREE



More Information:

+91 98113 39374



Write to us at:

enquiry@eawater.com



Visit Now:

www.eawater.com

"Networking and Collaboration Illuminate 2024 brought in around 300 attendees and provided an invaluable platform to foster networking and collaboration between government, industry, and tech providers—all of whom are crucial to accelerating India's Vision 2047 roadmap.

About Bentley Systems

Bentley Systems (Nasdaq: BSY) is the infrastructure engineering software company. We provide innovative software to advance the world's infrastructure – sustaining both the global economy and environment. Our industry-leading software solutions are used by professionals, and organizations of every size, for the design, construction, and operations of roads and bridges, rail and transit, water and wastewater, public works and utilities, buildings and campuses, mining, and industrial facilities. Our offerings, powered by the iTwin Platform for infrastructure digital twins, include MicroStation and Bentley Open applications for modeling and simulation, Seequent's software for geoprofessionals, and Bentley Infrastructure Cloud encompassing ProjectWise for project delivery, SYNCHRO for construction management, and AssetWise for asset operations. Bentley Systems' 5,200 colleagues generate annual revenues of more than \$1 billion in 194 countries.

30K Villagers Toil for 10 Months to Bring UP River Back on Course

PRAYAGRAJ: In an inspiring effort, over 30,000 people belonging to 20 villages in three blocks of Uttar Pradesh's Pratapgarh district toiled for over 10 months to revive the earlier course of a seasonal river. Over the last decade, the Sakarni (Sanskrit for one who listens), a rivulet that feeds the Sai, a tributary of the Ganga, saw large-scale encroachment by farmers on its banks. Consequently, the rivulet changed its course and became shallow in stretches. A local green activist, Ajay Krantikari, who heads an NGO called "Paryavaran Sena", led a campaign to bring back the river to its natural course and first raised the issue before the district environment committee, which is headed by the district magistrate. On October 13, 2023, following Krantikari's efforts, the district authorities included the Sakarni river under the small rivers' rejuvenation list under MGNREGS. Old revenue records were scanned to ascertain the natural course of the river, which was almost lost to the local residents. Over the next 10 months, nearly 30,000 people worked under MGNREGS to bring the river back to its natural 27.7km-long course. Besides, they also found employment in their respective blocks during the rejuvenation work on the rivulet.

The district administration spent Rs. 1.35 crore to make this happen. Shri Krishna, Pratapgarh district development officer, said, "The rejuvenation work of the small river Sakarni has been done with the help of villagers. Now, the river is flowing along its natural course. After conducting a detailed survey and analysis, we removed all the encroachments upon the natural course of the river." He said the seasonal river is now providing livelihood to people of Laxmanpur and adjoining blocks.

All Govt. Buildings in Delhi Must Have RWH System by September 30, 2024

NEW DELHI: A high-level committee has directed govt. agencies to install rainwater harvesting (RWH) systems in their buildings by Sept. 30. In a recent meeting, the committee, which was headed by the then chief secretary Naresh Kumar, also asked the landowning agencies to check the functionality of rainwater harvesting systems already installed on their premises. RWH is a technique of collecting and storing rainwater into natural reservoirs or tanks, or the infiltration of surface water into the subsurface level. These pits are actually soak pits, and during the rainy season, rainwater is collected through them. Thereafter, water penetrates into the ground, which increases the level of groundwater. While at least 3,687 schools in the city have rainwater harvesting systems, 361 parks under Municipal Corporation of Delhi (MCD) too have the system installed. Delhi Jal Board (DJB) has implemented the system in its 594 installations. Though the Delhi govt. has been contemplating making RWH system mandatory in all residential houses, there is no data on the number of such buildings having the system. There is also no data on the number of buildings and parks with functional harvesting systems and no estimate on the water conserved through harvesting. With the MCD, which is installing the system on top of govt. buildings, facing a shortage of funds, officials said Kumar had directed the agency to explore the possibility of getting financial assistance from the Union Ministry of Housing and Urban Affairs under the urban development fund. Officials said there was also a proposal to use Air Ambience Fund for the purpose, but the idea was shot down with the argument that it was created for the development and use of clean air technologies, waste management and related activities to reduce vehicular pollution in Delhi and could not be diverted. "There is a strict direction now to all departments concerned, including MCD, education, DUSIB, DDA, public works, DSIIDC, railways etc., which have a number of buildings in the city, to provide the RWH systems by Sept. 30. Public Works Department (PWD) has been directed to execute the project for all departments that do not have any technical expertise to install the RWH system," said an official.

SEPTEMBER 2024

NATIONAL WATER NEWS

"DJB has been appointed as a nodal agency and directed to coordinate with all departments and furnish updated reports regularly," he added. To ensure that all buildings have a functional RWH system, the civic bodies have been directed to issue the occupation certificates after proper verification. The urban local bodies will also have to submit the data of the issuance of occupation certificates to the committee. For recharging the groundwater in low-lying areas, DJB identified 33 recharge pits, but no other department made any substantial progress in creating the RWH systems in such areas. Officials said the agencies owning land and buildings in the city were also issued directions to assess low-lying areas and decide targets for the construction of RWH systems.

Clean India **SHOW**
21 22 23 NOVEMBER
2024

Hall 1, Bombay Exhibition Center, Mumbai

Gold Partner



Supported By



CONCURRENT EXPOS

WASTE
TECHNOLOGY
INDIA EXPOLundrex
INDIAAUTOCARE
EXPO

**Experience the success of
sourcing the right cleaning &
hygiene products and solutions to
meet your sustainability goals**

Discover the technological superior
& disruptive solutions for:

- Facility Services
- Industrial/Manufacturing
- Hospitality
- Healthcare
- Commercial
- Government

Scan the
QR code
to register



For more info visit: www.cleanindiashow.com
Or email us at: visitor@cleanindiashow.com

VIS GROUP
Building India's Vision

messe frankfurt

Register Now!

GLOBAL W

DROPLETS

LANXESS India bags two Global Environment and Energy Foundation (GEEF) Global Awards

LANXESS India has won two prestigious Global Environment and Energy Foundation (GEEF) Global Awards - Safety award in the platinum category and the WaterTech award in the Sustainable Water Management category for the year 2024. These accolades are a testament to our commitment towards excellence in safety standards and sustainable water management practices.

Balaram Khot, Wholtime Director and Head of PTSE along with Bharat Meesala, Senior Manager, PTSE - Occupational Safety, Xact, Responsible Care and Trade Compliance received the awards on behalf of LANXESS India at a gala event held in New Delhi on 26th July 2024.

The GEEF Global Safety Award recognizes LANXESS India's outstanding achievements in maintaining the highest safety standards within the chemical industry. The platinum category win displays the organization's dedication to ensuring a safe working environment for all its employees and stakeholders. LANXESS has strict group-wide directives on health protection, occupational & process safety. These directives focus primarily on identifying risks in advance and implementing measures designed to prevent accidents and rapidly detect and respond to incidents. Key features of the safety systems include active involvement of the employees in building operating procedures, job safety analysis, more focus on the behaviour-based safety programs, robust work permit system, contractor management systems, programs to improve employee health, implementation of strong technical control measures, increased focus on reporting of unsafe conditions and unsafe acts, incident management system, trainings and effectiveness check.

The Global WaterTech Award in Sustainable Water Management category highlights LANXESS India's innovative approach towards sustainable water management. Water plays a central role in LANXESS's strategy. As a chemical company, the organization faces up to its responsibility to decouple its own water consumption from economic growth and pursues clear goals: reducing specific water consumption overall and local water consumption, especially at sites where water is scarce. To this end, a water risk analysis is regularly carried out at LANXESS' sites to accurately measure what is known as "water stress," i.e. the relationship between water withdrawal and renewable water supplies.



Kazakhstan Sets Up Water Sector Development Partners Coordination Council

Kazakhstan set up a coordination council of partners for water sector development. It brings together representatives of the Kazakh Water Resources and Irrigation Ministry, UNDP, international organisations, financial institutions, and other structures, Kazinform News Agency reports referring to the Ministry's press service.

Its key goals are to ensure coordinated actions of state bodies, UNDP, international organisations, and financial institutions in conformity with the national priorities, mobilise and efficiently distribute financial and technical resources to achieve the set goals, support and develop key strategic documents, including the Water Code and water sector development package plan. It is also purposed to introduce international practices and innovative solutions in water resources management, strengthen regional cooperation in water management, and raise sustainability to climate changes and natural disasters, such as flooding and drought.

According to Kazakh Water Resources and Irrigation Minister Nurzhan Nurzhigitov, the water sector development partners coordination council is an important move for Kazakhstan's water sector. It is expected to play a significant role in promoting the country's long-term ecological stability and economic development.

The council is called to mobilise resources, strengthen management, expand regional cooperation, and promote sustainable water resources management practices.

Singapore's NEWater journey

Singapore, 27 September 2024 – PUB, Singapore's National Water Agency commemorated the closure of NEWater Visitor Centre (NVC) and Bedok NEWater Factory (BNF) with a closing ceremony today. The event graced by Guest-of-Honour Ms Grace Fu, Minister for Sustainability and the Environment and Minister-in-charge of Trade Relations, was attended by more than 100 guests.

ATER NEWS

In her opening remarks, Minister Grace Fu paid tribute to the dedication and significant contributions of the pioneers, whose indomitable spirit has been integral in implementing the technology behind Some of these pioneers include PUB's Senior Consultant Harry Seah, then-Project Manager of the NEWater study team who oversaw the research and development phase of NEWater before it was launched in 2002, and Mr Tan Thai Pin, the study team's Deputy Project Manager. Mr Tan played a crucial role in garnering support from industrial partners and convinced them to adopt NEWater in their operations. Professor Ong Choon Nam, a prominent local expert on water quality, contributed valuable technical knowledge as Chairman of the International Expert Panel on NEWater alongside his fellow panel members.

Continuing NEWater public education Although the NVC has officially closed on 31 July, visitors can still head to the Sustainable Singapore Gallery (SSG) at the Marina Barrage to learn more about the Singapore Water Story, which features NEWater as one of the key components of our water management strategy. PUB is committed to continue NEWater education and promote water sustainability and is working on developing a new exhibit on NEWater at SSG and at a learning gallery located at the upcoming Tuas Nexus..

Bolstering NEWater supply

With Singapore's water demand projected to nearly double by 2065, NEWater's role as a dependable and weather-resilient National Tap remains vital. To meet projected increase in water demand from industries, PUB is building a third NEWater Factory in Changi, located within the existing Changi Water Reclamation Plant (WRP). The upcoming Tuas NEWater Factory (TNF), which will be integrated within the Tuas Water Reclamation Plant currently under construction, will have a production capacity of 75 million gallons per day (mgd) – the equivalent of 136 Olympic-sized swimming A construction tender for the expansion of TNF from its initial capacity of 25 mgd to 75 mgd will be launched later this year.

As we progress towards a three-node* used water management system by 2035, PUB will continue to expand our used water treatment capacity and NEWater Plans are underway to reconstruct Kranji WRP and Kranji NEWater Factory (KNF), while Changi WRP will undergo a third phase of expansion to further increase its used water treatment capacity.

*The three-node system, with the Deep Tunnel Sewerage System at its core, consists of Changi WRP in eastern Singapore, Kranji WRP in the north and Tuas WRP in the west.

Pursuing research and innovation in NEWater PUB continues to innovate for greater efficiency of the NEWater production Since 2006, we have incorporated membrane bioreactor (MBR) technology in our used water treatment process. This 3-in-1 solution combines conventional bioreactors, secondary sedimentation tanks and microfiltration and ultrafiltration in one single step. The benefits include increased energy efficiency of used water treatment, reduced land footprint of our water reclamation plants and higher quality effluent for NEWater production.

The development of ceramic-based MBR also further enhanced our used water PUB conducted successful demonstration trials to validate the use of ceramic MBR systems as part of the used water treatment process, which proved to be more resilient to chemical damage and able to effectively treat industrial used water. The upcoming Tuas WRP will be retrofitted with ceramic MBRs for industrial water treatment and will house the world's largest MBR system.

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.



There is also a continuous effort to enhance energy efficiency in NEWater PUB has been collaborating over the last few years with local and overseas partners to develop and scale biomimetic membranes for municipal applications. The technology uses nature-based protein water channels within a filtration membrane, which facilitates high water flow while minimising energy consumption. Demonstration plant trials at KNF with Aquaporin Asia which commenced last year are showing promising results, achieving 20 percent reduction in energy consumption.

To improve NEWater recovery rates, PUB explored the incorporation of water technology company ROTEC's proprietary Flow-Reversal technology in the reverse osmosis membranes used during the NEWater production process. Initial trials have successfully demonstrated an improvement in recovery rates from 85 percent to as high as 90 percent, enabling PUB to produce more NEWater from each drop of treated used water. The Flow-Reversal technology will be incorporated into the design of our future NEWater plants.

About PUB, Singapore's National Water Agency

PUB is a statutory board under the Ministry of Sustainability and the Environment (MSE). It is the national water agency, which manages Singapore's water supply, water catchment, and used water in an integrated way. From April 2020, PUB also took on the responsibility of protecting Singapore's coastline from sea-level rise as the national coastal protection agency.

PUB has ensured a diversified and sustainable supply of water for Singapore with the Four National Taps (local catchment water, imported water, NEWater, desalinated water). PUB leads and coordinates whole-of-government efforts to protect Singapore from the threat of rising seas and the holistic management of inland and coastal flood risks.

PUB calls on everyone to play a part in conserving water, in keeping our waterways clean, and in caring for Singapore's precious water resources. If we all do our little bit, there will be enough water for all our needs – for commerce and industry, for living, for life.



Saudi Arabia's Palm Waste Biochar Initiative Cuts Farming Water Use by 30%

RIYADH: The National Center for Palms and Dates and the Ministry of Environment, Water and Agriculture have launched what is reportedly the region's first biochar initiative, created by recycling palm waste, in Saudi Arabia, the Saudi Press Agency reported on Saturday.

Biochar, a carbon-rich porous material, improves soil structure, enhances water retention, and increases nutrient availability. It can also help lower greenhouse gas emissions and mitigate the effects of climate change, according to the SPA.

By utilising biochar, farmers can expect a 30-percent reduction in water consumption, faster plant growth, and higher yields.

This environmentally sustainable product helps the ministry fulfill its commitment to promoting a circular economy and supporting the agricultural sector through sustainable practices, the SPA reported.

With over 36 million palm trees distributed across the Kingdom, the country's abundance of palm waste is a valuable source for producing biochar, which not only contributes to protecting the environment but also presents new economic opportunities for investors and entrepreneurs.



Korean Team Uses Artificial Intelligence to Produce Clean Water

The new AI model demonstrated impressive accuracy in predicting the concentrations of key ions such as sodium, potassium, calcium, and chloride. Approximately 2.2 billion people worldwide lack access to safe, managed drinking water, and nearly half of the global population faces severe water scarcity at some point each year. To combat these pressing issues, significant socioeconomic investments are being made in alternatives like sewer irrigation, rainwater reuse, and seawater desalination.

However, centralised water distribution systems often struggle to adapt quickly to fluctuating water demands, prompting a growing interest in decentralised water production technologies. Researchers at the Korea Institute of Science and Technology (KIST), led by Dr. Son Moon, have developed an innovative solution using data-driven artificial intelligence to enhance electrochemical water treatment processes.

Collaborating with Professor Baek Sang-Soo's team at Yeongnam University, they created a random forest model — an efficient machine learning technique — to predict ion concentrations in water more accurately than existing sensors that rely on electrical conductivity measurements.

The new AI model demonstrated impressive accuracy, achieving an R^2 value of approximately 0.9 for predicting the concentrations of key ions such as sodium, potassium, calcium, and chloride.

This breakthrough allows for real-time monitoring of water quality, which is essential for effective management of water resources.

The researchers found that updates to the model were necessary every 20 to 80 seconds to maintain accuracy, indicating that frequent measurements are crucial for tracking specific ions.

Dr. Moon emphasised the significance of this research not only in advancing AI technology but also in its potential applications within national water quality management systems. By enabling precise monitoring of individual ion concentrations, this technology could significantly enhance social water welfare and contribute to more effective responses to global water challenges.

As the world grapples with increasing water scarcity due to climate change and population growth, innovations like this offer hope for improved water management strategies that can adapt to the needs of diverse communities.



Kazakhstan's water sector will be fixed in next 2-3 years, says National Minister

The Arab Coordination Group held a roundtable focusing on water and irrigation development in the Kazakh capital of Astana, Kazinform News Agency correspondent reports.

Attending the meeting were Deputy Prime Minister, Minister of National Economy of Kazakhstan Nurlan Baibazarov, representatives of the Kazakh Ministries of Transport, Healthcare as well as Water Resources and Irrigation. The Arab Coordination Group included representatives of the leading investment funds of the Persian Gulf — the Islamic Development Bank, OPEC Development Fund, Saudi Fund for Development and others.

They are major investors, providing financing on very attractive terms, as they pursue the aim of development. You're aware of the feature of Islamic financing, that has no hidden commission. Funds are provided for development purposes, good cause, that's why these investments are very beneficial and long-term ones for us. It's also important to note that it's infrastructure, including social infrastructure, that the Arab Coordination Group seeks to finance, said National Economy Minister Nurlan Baibazarov.

According to Yerbolat Ibraikhanov, vice minister of water resources and irrigation, Kazakhstan will face a shortage of water of 12-15 cubic kilometres per year by 2040. The Kazakh vice minister presented seven projects for construction and four projects for reconstruction of water storage facilities across the country, as well as repairs of 3,618 km of irrigation channels. The total investments necessary for this purpose are estimated at 2.6 billion US dollars.

Delivering their speeches were also Vice Minister of Transport Satzhan Ablaliyev, presenting 67 infrastructure projects worth 27.6 billion US dollars, as well as Health Vice Minister Yerzhan Nurlybayev, presenting the project of a medical centre in Almaty.



The first deal, we're concluding now with the Islamic Development Bank, is to attract investments to restore our country's water system and water sector. The active construction is set to begin in the next year. We will fully fix our water sector in the next two to three years, said Baibazarov.

Former Fishermen in Hubei Help Protect Important Water Source

For decades, Wang Zhaobing, 58, like many villagers in his community, relied on aquaculture and fishing for his livelihood.

Living beside the Danjiangkou Reservoir, a vital water source in China's South-to-North Water Diversion Project, Wang's life revolved around the water. However, 10 years ago, he made a decision that would change not only his life, but also the lives of the people in the local community.

The Danjiangkou Reservoir, which holds over 29 billion cubic meters of water, is crucial for transferring water from southern to northern provinces in China. It serves as the starting point for the middle route of the diversion project, which supplies water to Beijing, Tianjin and the provinces of Henan and Hebei.

In 2014, in response to government policies aimed at protecting the aquatic ecosystem, Wang decided to dismantle his aquaculture cages. The decision sparked a debate among fellow villagers, many of whom feared losing their primary source of income.

"At that time, the government introduced policies to clean up aquaculture cages to protect the aquatic ecosystem," Wang said. "Some villagers really resisted, as this would mean losing our original source of income." Wang soon realised that overfishing and unsustainable aquaculture practices were threatening the water source. He decided to take action, emphasising the importance of sustainable development.

He told other fishermen they could not just focus on immediate benefits and also needed to consider future generations, for whom a healthy aquatic ecosystem was a precondition for long-term prosperity.

His call for change resonated within the community, and all the villagers eventually removed their aquaculture cages.

The scale of the cleanup effort was significant. In one district of Danjiangkou county in Shiyan, Hubei province, nearly 20,000 aquaculture cages needed to be cleared. Over the next three years, all the owners complied, moving to new villages onshore and starting fresh lives.

Huang Jinliang, the secretary of the local forest farm, said the transition went beyond removing cages.

"Many fishermen became volunteers, joining local water conservation efforts and becoming 'water guardians'," Huang said. "They now help clean up the Hanjiang River and monitor water levels during flood season."

"In 2020, the county government established a team to handle garbage and floating debris on the river. Huang recruited 12 villagers from Jijiagou village, including former fishermen and forest workers, to join the team."

"We clean up the garbage along the Hanjiang River every day, especially during the flood season when the amount of garbage and floating objects increases," Huang said. "Sometimes we work from 5 in the morning until the afternoon to protect the safety of the dam."

"That same year, a fishing ban was implemented to further protect the reservoir. Once again, Wang took the lead, handing over his fishing boat and nets despite his concerns about finding a new way to support his family. He soon joined the forest farm's water conservation team and became a leader."

Over the past four years, Wang has made over 700 boat trips, covering more than 7,000 kilometers while leading his team of 11 in patrolling the reservoir. They work to prevent illegal fishing, littering and other activities that could harm the aquatic ecosystem.

"Whenever we see someone illegally fishing, doing laundry, littering, grazing or swimming, we immediately intervene," Wang said. "Some villagers and tourists may not fully understand this, so we patiently explain the concept of environmental protection to everyone."

"Thanks to the collective efforts of local residents, the water in the Danjiangkou Reservoir is clearer, and surrounding villages are cleaner. Many former fishermen have started planting crops such as oranges and dates, finding new ways to make a living."

"My grandson is in third grade now," Huang said. "He says he is most proud that his grandfather cleans the Yangtze River and is a truly remarkable person."





EA WATER CLUB



Life's now more
REWARDING at EA Water Club!
Simply subscribe to EverythingAboutWater magazine and enjoy exciting benefits.

As our valued Club member, you are entitled to benefit from exciting offers and rewards!

Subscribe



EA Water comes up with the most popular monthly magazine on water and wastewater management in India. Our Magazine is read by thousands of leading industries, government bodies, consultants, and contractors across the country

SUBSCRIPTION FORM

NOTE: * 5% GST WILL BE APPLICABLE ON THE FINAL PRICE.

1. Choose your magazine subscription(s)

Subscribers	Term	No. of Issues	Issue Price	% Savings	You Pay
Domestic	5 Years	60	Rs.24000	40%	Rs. 14400
International	5 Years	60	USD 3000	40%	USD 1800
Domestic	3 Years	36	Rs.14400	25%	Rs. 10800
International	3 Years	36	USD 1800	30%	USD 1260
Domestic	2 Years	24	Rs. 9600	15%	Rs. 8160
International	2 Years	24	USD 1200	20%	USD 960
Domestic	1 Year	12	Rs.4800	10%	Rs. 4320
International	1 Year	12	USD 600	Nil	USD 600

2. Contact and postal details

Name _____
 Designation _____
 Company Name _____
 Address _____
 City _____ Pin/Zip Code (essential) _____ State _____
 Country _____
 Tel _____ Mobile _____ Fax _____
 E-mail _____
 Website _____

3. Payment details

National Subscribers

Cheque No. /DD No. (In favor of "EARTH WATER FOUNDATION") _____

Drawn on (bank name) _____

dated _____ for Rs. _____ (payable at Delhi/par).

Note:

- All payments to be made by DD/Cheque/NEFT/RTGS only, in favour of "EARTH WATER FOUNDATION"
- Account details: Bank Name: IDFC First Bank, Golf Course Extension Road Branch
- Account Number: 10056535743, Swift Code: IDFBINBBMUM, IFSC/RTGS/NEFT Code: IDFB0040101, PAN No.: AAACE7028F, Account Type: Current

International Subscribers

Note:

- All payments to be made by T/T (Wire transfer) only, in favour of "EARTH WATER FOUNDATION"
- For T/T transfer, bank and account details:
- Bank Name: IDFC First Bank, Golf Course Extension Road Branch
- Account Number: 10056535743, Swift Code: IDFBINBBMUM, IFSC/RTGS/NEFT Code: IDFB0040101, PAN No.: AAACE7028F, Account Type: Current

Date _____ Signature _____

Mail to: Earth Water Foundation 7, Khullar Farms, Mandi Road Mehrauli,
New Delhi 110 030, India Tel: +91 8448963579 / 85889 11033

South Bay Plant Awarded \$400M Contract to Expand Facility by Border Water Authority

Throughout the project, the IBWC will use the more than \$400 million in federal funding secured by the Congressional delegation to repair and expand the plant.

SAN DIEGO — California's elected leaders Wednesday applauded the International Boundary and Water Commission's announcement that it has awarded the contract for a project to expand the South Bay International Wastewater Treatment Plant. Over the course of the project, the IBWC will use the more than \$400 million in federal funding secured by the Congressional delegation to repair and expand the plant.

"Today's announcement for the South Bay International Wastewater Treatment Plant is a step in the right direction in beginning to seriously address toxic waste and raw sewage flowing from the Tijuana River," said Sen. Alex Padilla, D-California.

"The health and environmental hazards created by this pollution has contaminated Southern California's air and water for too long, and I'm committed to fighting for more federal resources to address this crisis with the urgency it demands." In March, the San Diego Congressional delegation secured over \$156 million in funding toward critical repairs to the South Bay International Wastewater Treatment Plant.

In 2019, the delegation secured \$300 million to expand the South Bay plant from 25 million gallons per day to 50 million gallons per day. In 2022, the delegation passed legislation to clear the path for the IBWC to use the funds to address harmful pollutants in the Tijuana River Valley.

"Our communities can't wait. I'm glad to see the IBWC take this important step, which will allow them to put the more than \$400 million my colleagues and I secured for the South Bay International Wastewater Treatment Plant to work for repairs and upgrades," said Rep. Juan Vargas, D-San Diego. "This project will help double the plant's capacity, prevent up to 90% of untreated wastewater from reaching the coast, and provide cleaner and safer water. "I'll keep fighting alongside the San Diego Congressional delegation to secure the resources needed to combat pollution in the Tijuana River Valley, make sure Mexico does its part, and ensure our water, land, and air is safe for all," he said.

In May 2024, the elected officials called on the U.S. Centers for Disease Control and Prevention to look into the contaminants in the water, soil, and air from the sewage and the connection to reported increases in illnesses and other symptoms.

The CDC has agreed to begin an investigation into the public health impacts of the Tijuana River sewage pollution. "This announcement has been a long time coming — and I'm so excited to see the \$400 million that our congressional delegation secured result in big, meaningful progress to end the Tijuana River Valley crisis," said Rep. Sara Jacobs, D-San Diego. "Our work isn't over yet, and we will continue to review the progress of the IBWC construction, collaborate with our Mexican counterparts, and work together to ensure that communities on both sides of the border can live safely.



£17.5 million water improvement scheme underway at Ballinrees Water Treatment Works, Coleraine

NI Water has announced that a £17.5 million project is underway to extend the existing site at Ballinrees Water Treatment Works, Coleraine. This upgrade will help improve water quality and security of supply for approximately 75,000 customers in the Coleraine area, supplying towards Portrush/Ballymoney and also supplying parts of Limavady and Derry/Londonderry, ensuring the water supply continues to meet essential Drinking Water Regulations.

This major upgrade began in March 2023 and work is expected to be complete in early 2025. The work involves the construction of a new treatment building to improve water treatment standards. Construction is also underway on an interstage pumping station as part of the overall programme. Eimear McDaid NI Water Senior Project Manager said:

"We are delighted that this major investment at Ballinrees is underway, which will bring many benefits to around 75,000 customers in the wider Coleraine area, including improved drinking water quality and security of supply. "This key improvement scheme will protect and future-proof the local water infrastructure for customers, businesses and tourism in the area by boosting the resilience and providing additional security of the water supply network.

EverythingAboutWater

Annual

BUYER'S GUIDE

Directory.

India's No. 1 destination for suppliers.

With a total circulation of more than 55,000 copies across India, the annual buyer's guide directory is one place where your products need to be seen.

List your products for
FREE

OPT for
paid listing

Choose to
advertise

GET THE BEST

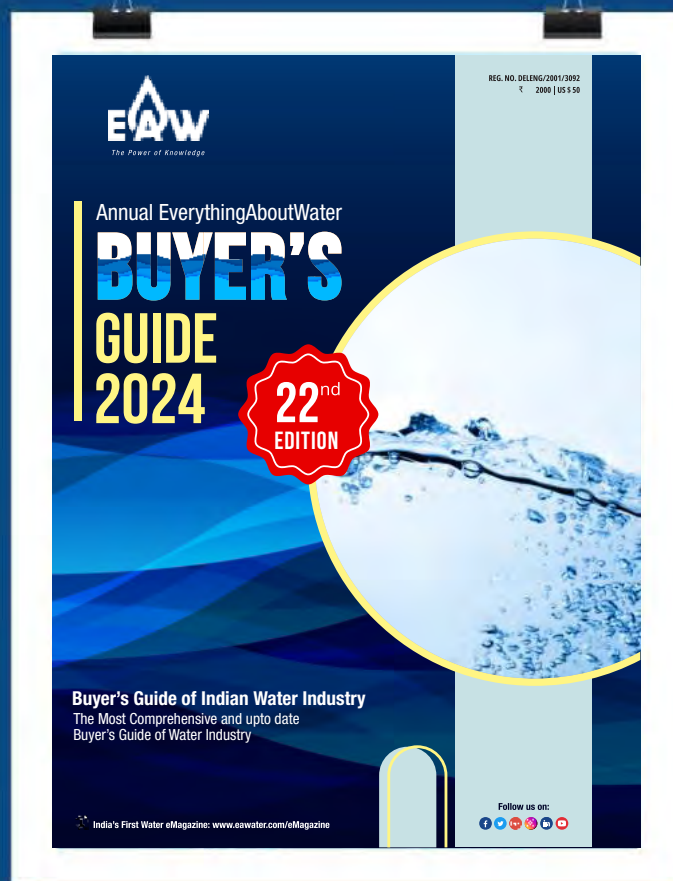
- » India's No. 1 annual buyer's guide for the last 19 years
- » Database of 5,000 water companies, 260 product categories in one buyer's guide
- » Total circulation of more than 55,000 across India
- » 10,000 complementary mailing on focused data
- » Covers all major suppliers in the water and wastewater sector
- » Most comprehensive list of products and services
- » Year-long shelf life for buyers

REACH THE RIGHT AUDIENCE

- » Purchase and Utility Managers of End-User Industries
- » Consultants and Contractors for Water and Effluent Management
- » Builders, Architects, and Construction Companies
- » Water Treatment OEMs & System-Integrators
- » Municipalities, Water Boards and Public Health Departments

WHY ADVERTISE HERE?

- » Presence is one of the biggest and most premium issues of EverythingAboutWater magazine
- » Reach premium target readers in one cost-effective package
- » The buyer's guide has a presence in all major trade shows
- » Dedicated marketing activities for increasing demand and interest level
- » Ensure your premium ad location right now – book your spot before



Earth Water Foundation

A/152, IGNOU Road, Neb Sarai,
New Delhi 110 068, INDIA
M.: +91 96500 59996
E: enquiry@eawater.com

www.eawater.com

This is particularly important in the event of a high demand or other emergency situation. "The Contractor for this major scheme is DLJ Water Limited and the Project Manager is RPS/Tetrattech.

New analysis from the British Standards Institution and Waterwise highlights lack of progress on water security which will impede economic growth in the UK

China, India and the US have been rated as facing the highest level of water security challenges alongside relatively limited progress towards solutions in new analysis published by BSI and Waterwise, while there was no improvement in the water security of 31 countries in the last 12 months.

The study combines publicly available data with international polling of over 9,300 people to evaluate how water insecurity is perceived in some of these countries, finding a concerning disconnect between the reality of the challenge, public understanding of its severity, and the action required to turn things around.

Although 60% of respondents recognize water security as an important global issue, and three quarters specifically cite drought in their country as an issue (76%), under half (45%) said addressing water security was as important as addressing climate change. The polling also found that only 15% globally say they see water security discussed regularly by politicians or media, despite the fact that annual water use rose by around 3,500 billion m3 globally between 1900 and 2024 and will worsen with climate change. Put in context, this equates to adding 895m3 of water demand each second.

Global water demand is projected to grow by around 1%, or 400 billion m3, per annum. On this basis, new calculations show that the world could add 1268 m3 of water demand per second. BSI Water Security and Solutions Indicator 2024 In the 2024 Water Security and Solutions Indicator, China, India and the US all score above 50 out of a possible 85, meaning they face some of the greatest

challenges and are making limited progress on solutions. Compared with this, the polling data suggests gaps between the reality of the global water security challenge and public comprehension of the scale of the issue – 74% claimed to be confident in their country's freshwater supply, but this included 85% in India, 82% in Australia, and 73% in the US. The greatest increase in a water security challenge score was seen in Spain, which went up by five points, due to an increasing proportion of the country's available freshwater being abstracted, a decrease in the price of water relative to national GDP and a decrease in water use efficiency.

This increase is particularly concerning in light of the water scarcity challenges faced by Spain in the last few years, such as the drought emergency declared by the Catalonia regional government in February 2024. Of the 41 assessed, 13 received higher scores representing greater water insecurity in 2024 – these included Türkiye, North Macedonia, the Netherlands, and Belgium. In Asia, China, India, and Japan also received worse scores.

Decreases since 2023, indicating improvements in water security, were generally small and only seen in nine countries, including Sweden, Switzerland, Slovenia and Norway.

Positively, more than half of people (53%) believe in the need to act, saying it is important for individuals to take steps to reduce wastage and promote water security. 73% globally would support the introduction of water use labels on products, reflecting a strong desire for actionable solutions. Similarly, more than two thirds would be willing to spend more on brands acting on water efficiency (68%) and two thirds (67%) would purchase items using less water intensive materials (e.g. recycled cotton) even at greater cost.

Ghinwa Chammas, Group Director of Sustainability, BSI, said: "The UK's slow progress on addressing water insecurity risks constraining the country's growth, as freshwater is a finite resource and the research shows that much of our water infrastructure is not currently fit for the future. Just as with the climate crisis, we need to invest in future-ready infrastructure and educate consumers to make sensible choices where they can. The cost of investing in water security now and increasing awareness of the issue will be nothing compared with the potential cost to households and businesses of not having enough water available for use in the future.

"Susan Taylor Martin, Chief Executive, BSI said: "While we are seeing pockets of progress towards a water secure world, there is more to do to promote understanding and positive change. This begins with awareness and recognition of the scale of the challenge, and how it fits into broader conversations about climate change and sustainability, from there our politicians and leaders can pave the way for action.

"While there is no single solution, we can and should take action today—from implementing water efficiency labelling to improving consumer choices, to advancing wastewater management in pharmaceutical development. There is much we, as individuals, organizations, and society, can achieve collectively. At BSI, we believe that individuals and organizations can come together to drive progress toward a sustainable future, where the supply of fresh water meets growing demands."

Nicci Russell, CEO, Waterwise said: "Whilst there is a genuine appetite in the public to be part of the solution, the water security challenges

our world faces remain with us. Progress is frustratingly slow in most of the world and in other parts, the challenges posed by water security are actually growing. What is crystal clear from the research is that a key part of the solution is making sure that we use the water that we do have wisely in our homes and workplaces. In doing so, we will ensure that we adapt to climate change better, secure water supplies for people and businesses, and enhance the environment.

"Globally, Britons (21%) and the Japanese (15%) were least confident in their understanding of their country's level of water security, potentially indicating the impact of insufficient political and media focus. Additionally, a quarter globally lacked confidence in their country's infrastructure for ensuring water security, with the lowest confidence levels reported in the UK (32%) and Japan (44%). BSI sets out tangible areas for action in the report, including calling on media and policymakers, along with businesses and other organizations, to shape the conversation and raise awareness by incorporating water security into climate discussions. Additionally, BSI is urging consumers to be supported to make informed, sustainable choices, for example via tools like mandatory water efficiency labels, used in Australia and Singapore, to boost consumer awareness and market innovation in water conservation.

The research also reveals:

- 76% of people believe medicines should be a national security priority, so governments should prioritize water supply for the pharmaceutical sector.
- 82% say pharmaceutical companies should strictly control wastewater and face fines for breaches, even if it raises medicine costs.
- 62% of consumers now look for sustainability claims when buying products, with 68% willing to pay more for food and beverages from brands that demonstrate good water efficiency.
- There is strong interest in water labelling, with 73% wanting to know the water used in products to make sustainable choices.
- 60% see flooding in their country as an issue while three quarters globally see drought in their country to be an issue, indicating drought is perceived to be a higher risk.

New aqua green reduces flood risk for hundreds east of Hull

Castlehill Aquagreen is a key part of the second phase of the £28 million pound Holderness Drain Flood Alleviation Scheme which when fully complete, will reduce the risk of flooding for over 800 homes in Sutton and North Carr by storing water during times of flood. Plans for the second phase of the aquagreen project were approved and planning permission granted by Hull City Council and East Riding of Yorkshire in 2022, with construction starting in the spring /summer of that year. The aqua green, south of the old Bransholme Dairy Farm, like aquagreens in other parts of Hull, will be dry in normal weather but can store water when conditions demand it.

Once the peak of a flood event has passed, the site will release water slowly back into Holderness Drain. Additional benefits resulting from the scheme include the creation of green space for people to enjoy and work done to protect, and improve access to, the Castle Hill ancient monument. Children from Biggin Hill Primary School helped design illustrations for information boards for the site and the local community helped with the planting of thousands of trees on the site last year. Andrew Barron, Flood Risk Advisor for the Environment Agency, said:

"This scheme doesn't just reduce flood risk for hundreds of homes in the area, it also brings a range of social and environmental benefits to the area, including improved access for visitors and new habitats for wildlife.



"A further key part of the Holderness Drain Flood Alleviation Scheme is a new pumping station in East Hull, which has been formally commissioned in recent months. The fully automated station has the capacity to pump more than 7.5 cubic metres of water per second out of the Holderness Drain into the Humber Estuary and was in operation through last winter.

Together, both components of the scheme will reduce the risk of flooding to neighbourhoods on the eastern side of Hull and provide a long-term, more sustainable approach to managing water in the Holderness Drain catchment.

The Castlehill Aquagreen is a partnership project led by the Environment Agency and supported by Hull City Council, East Riding of Yorkshire Council, National Highways and the former Humber Local Enterprise Partnership's (LEP) Local Growth Fund Programme, now the HEY Business Growth & Skill Hub.

By working together with both councils and the LEP, the Environment Agency was able to purchase the land in advance of the scheme, which enabled the scheme to progress more easily. Funding contributions from these organisations, as well as by National Highways and the Yorkshire Regional Flood and Coastal Committee, not only enabled the scheme to address flood risk issues, but it also provided significant wider environmental enhancements for the benefit of the local community. Rachel Glossop, flood risk manager at Hull City Council, said:

“The council is proud to have been a partner on this project. It aligns with its policies of tackling climate change, working with nature and reducing flood risk to our residents by developing a multiple benefit scheme providing much needed habitat and water storage.”

When wastewater supply outstrips capacity

In countries operating a combined sewage system, there's typically a pipeline network of sewers spanning thousands of kilometres. These pipelines are designed to transport wastewater from homes and businesses and stormwater from roads and buildings to sewage treatment works. During heavy rainfall events large volumes of stormwater enter the combined sewers, which can lead to them becoming inundated as the volume entering the combined sewer network exceeds downstream wastewater treatment plants' design capacity.

In the past, combined sewer pipe contents backed up the pipeline, spilling into people's homes and office buildings, roads and open areas. Combined sewer overflows (CSOs) were developed to prevent this by diverting some water to avoid exceeding the downstream wastewater treatment plant and storm tank storage capacity, depositing it into local water courses. However, if wastewater treatment plants and CSOs aren't appropriately maintained or upgraded, CSOs can become prone to activating too early, causing pollution events, fines for the utility and damaging customer relationships. CSO process

Rising sewer mains are pressurized pipelines carrying sewage uphill and are a notorious weak point in the wastewater network. They have a high rate of bursts and are often located near natural water resources and so can lead to damaging pollution incidents. In the context of the UK wastewater network, below are some example contributory factors behind rising sewer mains failure and CSOs spilling prematurely.

Aging assets

Historically, England's combined sewerage system was developed during the Victorian period, and whilst most of the wastewater

pipeline networks and wastewater treatment plants are considerably newer, much of the infrastructure is aging. Significant progress needs to be made to monitor the wastewater network to prevent CSOs from activating prematurely and rising sewer mains bursting. Extreme weather events UK annual rainfall has increased in recent decades in tandem with the escalating climate crisis. Additionally, rainfall events are becoming more extreme in their nature, with an increase in rainfall intensity being experienced. This has put a strain on combined sewerage infrastructure because rainwater flows through the same pipeline as sewage.

Sewage treatment works flow issues Growing populations and an increase in rainfall entering sewers mean larger volumes of diluted wastewater now travel through pipelines, with some sewage treatment plants design capacity being exceeded, often resulting in CSOs spilling prematurely.



The solution: early leak detection Crucial in ensuring the performance of wastewater networks is the early monitoring of rising sewer mains. These are notoriously weak areas in the wastewater network and leak or burst events can cause severe environmental incidents, just like poorly managed CSOs.

Case study: single ended leak detection for rising sewer mains A UK utility had an opportunity to adopt a more proactive maintenance approach to its rising sewer mains.

Atmos developed a pipeline leak detection solution that immediately identifies bursts in the rising sewer main, overcoming the typical process connection restrictions usually at the top of rising sewer mains by deploying a single ended leak detection approach. Another solution Atmos developed was a pipeline inspection device that performs a high resolution acoustic and magnetometry survey of the



CUSTOMIZED WEBINAR WITH B2B MEETINGS

LET'S CONNECT DIGITALLY VIA WEBINAR

EverythingAboutWater offers customized

WEBINAR & B2B MEETINGS



THROUGH OUR DIGITAL PLATFORM.

BENEFITS

Connect with your target audience at one platform

Direct interaction with decision-makers

Get contact details of all attendees for future follow ups

Showcase your presentation and talk about your product in detail without worrying about travel, meetings & other concerns

Resolve on spot queries related to your Products & solutions

Undivided attention from audience

Free product promotion through digital marketing tools

**EARTH WATER
FOUNDATION**

E-mail us on:
enquiry@eawater.com

pipeline, used to identify existing small leaks and sections of pipeline that might be prone to burst. Since installing the instrumentation, our sensing technology built a profile of the utility's pipeline condition, providing crucial diagnostics for a rising sewer main where the risk of burst rates is high.

New leaks were detected using single ended negative pressure wave data and a novel approach to measuring flow using pump vibration data meant leak sizes could also be estimated, allowing the water utility to differentiate between lower and higher priority leak events.

Relieve rising sewer mains with early pipeline leak detection Leaks and bursts in rising sewer mains have the potential to cause significant environmental, financial and reputational damage, but leak detection can provide an early pipeline monitoring solution.

Enhanced treatment can speed-up spill reduction

Enhanced wastewater treatment holds the key to reducing sewage overflows to the environment in a sustainable way, says Dominic Hurd, managing director, ACWA Services. Public and political pressure on water companies to address the issue of sewage spills into rivers and seas means overflows are no longer solely an issue for operations teams. They top the in-trays of water company chief executives, who are personally invested in finding the best solutions available to address this highly charged challenge.

The brief from government demands sustainable and 'nature-based' solutions to the many water and wastewater challenges on their desks. While the Defra's attention is understandably drawn to highly desirable habitat-rich wetland schemes for wastewater treatment, as stated in the 2023 Plan for Water, there is a more direct route to managing spills and pollution already being adopted by water companies. It is an enhancement to the original nature-based solution – activated sludge (AS), which uses biological organisms concentrated in reactors to produce highly treated effluent. One of many advantages of AS over legacy sewage farms in the early 20th century, was that much greater volumes of wastewater could be treated in a much smaller footprint. With a few tweaks, that is the system still operating at many sites across the UK. Today's utilities are facing a challenge no different from the one addressed by engineers Arden and Lockett, who were carrying out research at Davyhulme sewage works in 1913 – they need a higher throughput in the same footprint. They also need to raise the quality of water discharged to the environment to match 21st century public expectations.

Massive investment

Some £2.5 billion of investment in wastewater treatment works was allocated to halving phosphorus discharges in AMP7 – between 2020 and 2025, but this is dwarfed by the government's Storm Overflows Discharge Reduction Plan, which requires an anticipated £56-billion capital investment over the next 25 years. The size of the investment indicates that solving this multifaceted challenge will not require a single bullet, but a considerable arsenal.

Given the scale, extent and site constraints of existing AS installations, a focus on technologies and equipment that can advance site efficiency and increase process volumes will be a pragmatic way to go in many instances. There are proven alternatives, readily available, that can be rapidly retrofitted to upgrade existing sites.

One such is ACWA-Nuvoda's MOB – Mobile Organic Biofilm, which uses a unique organic mobile carrier media, derived from the core of the kenaf plant, to achieve a rapid and significant increase in treatment capacity. Retrofitting existing wastewater treatment plants with MOB ensures discharge consents are met by reducing nutrient levels in effluent discharges, while delivering energy, carbon and chemical savings. According to Ofwat, activated sludge plants (ASPs) in England and Wales may be reaching flow-to-full-treatment (FFT) level, a requirement of their environmental permits, more frequently, and on occasion breaching their permits. This is due to factors including increasing intensive rainfall events, poor maintenance and incorrect operation of equipment.

Where high flow enters the works, as well as the risk of spills to the environment, the plant can experience washout of the microorganisms essential to the biological processes. These exit the works due to the high hydraulic load and the recovery time for processes can be days and even weeks. With ACWA-Nuvoda MOB, those organisms are retained as thick biofilm growth on the plant-based biomedica, and regenerated within the system, delivering increased treatment capacity and shortening recovery time to hours.

The kenaf plant is a multi-purpose regenerative fibre that has historically been used in the production of rope, building materials and animal feed. It has been selected and specifically machined as the biomedica for MOB because of its absorptivity, high surface area, unique cellular structure and longevity in secondary treatment conditions. The biomedica is retained within the system using a rotary drum screen installed on the surplus activated sludge line.

Screened media is simply returned to the bioreactor, making the process nearly 100% efficient, with very little top-up required. ACWA-Nuvoda's MOB uses a unique organic mobile carrier media to achieve a rapid increase in treatment capacity.

ACWA-Nuvoda's MOB uses a unique organic mobile carrier media to achieve a rapid increase in treatment capacity.

Reduced costs

Along with nutrient removal, MOB ensures improved settling and optimised process stability, even during fluctuating weather conditions. It reduces the need for polymers, coagulants and phosphorus precipitation technologies, reducing overall capital and chemical cost. It also improves sludge dewatering, significantly reducing tankering requirements. For the many existing ASP treatment works with little room for expansion, MOB offers a solution. Mobile Organic Biofilm is a 'no-build' solution that can be introduced into existing systems, offering significant capital savings and no extra land-take.

Spill Mitigation

MOB offers facilities an opportunity for spill mitigation by increasing the available hydraulic capacity of an existing treatment works. Thereby allowing more flow to a treatment works rather than diversion to rivers and streams during high flow rain events.

Headquartered in Yorkshire, ACWA Services has been delivering specialist wastewater treatment services in the UK and globally for nearly 40 years. The company is the exclusive agent of Nuvoda's MOB patented technology in the UK and Ireland, which is already installed in numerous full-scale municipal and industrial installations across Europe and North America. The scale and potential cost of investment required to meet the latest UK targets on environmental discharges means enhanced treatment has a significant role to play. This requires an interrogation of what 'nature-based' means, and which solutions can be delivered rapidly and reliably.

Where site footprint is tight, pollution risk is high and public pressure is on, readily available technologies like MOB are already delivering highly efficient, sustainable treatment; with some of the UK's most progressive utilities already on board.

40 tonnes of bee-harming neonics a year flow through Asia's longest river

More than 40 tonnes of bee-harming neonicotinoid insecticides,

known as neonics, have been estimated to be flowing through Asia's longest river every year, according to a new study published by researchers in Scotland and China. The study, led by a specialist at The James Hutton Institute, alongside scientists at Northeast Agricultural University, Harbin, and Wuhan University of Technology, Wuhan, China, tested a 200 km-long mid-section of the Yangtze River for concentrations of 11 different neonics at 18 locations.

A third of samples collected contained levels of the insecticide that exceeded "chronic ecological risks thresholds", while agricultural use identified as the main source. The most common neonic found was imidacloprid, of which China produced 23,000 tonnes in 2016, says the study authors. Based on the chemical concentrations found, which would have come from the section tested, but also upstream of it and associated tributaries, the study estimated that 40 tonnes of the 11 neonics were flowing through the river annually. Professor Zulin Zhang, senior research scientist at the Hutton and main-author of the study, said:

"The findings from this study indicate a need for a better understanding both of the risks these chemicals pose to the environment and what we can do to make sure they do not undermine the health of the Yangtze River Basin, the world's third longest river, which supports more than a third of China's population (>400 million people).

"Neonicotinoids were developed in the 1980s and gained widespread use at a global scale. However, a number of countries have banned them, including the EU, which banned outdoor use of the three main neonics, including imidacloprid. Other countries, including Sweden, the USA, Canada and the Netherlands, also have water quality guidelines for neonicotinoids with limits on concentrations. There is also work ongoing to develop alternatives, which pose less risk, to the environment, as well as sustainable Clean-up technologies for emerging contaminants (for example, adsorption and advanced oxidation processes) are being potentially developed to remove these chemicals from waters once they enter the aquatic environment.



CERAFILTEC UNVEILS FLEXX-CAP® AND REINVENTS MBR: A BREAKTHROUGH IN CERAMIC MEMBRANE TECHNOLOGY, AT IFAT 2024

Munich, Germany, – After more than two years of dedicated product development, CERAFILTEC, the global leader in ceramic flat membrane (CFM) technology, introduced its latest product innovation at IFAT 2024: FLEXX-CAP®. Attendees and members of the media joined the CERAFILTEC team for the highly anticipated product reveal at the booth, B2.114. This patented technology, exclusively available from CERAFILTEC, marks a significant advancement in the field.

With the FLEXX-CAP, CERAFILTEC's new product harnesses the power of enhanced fluid dynamics to significantly increase the performance of ceramic membranes in MBR systems. The innovation lies in engineered micro-movements, dislodging solids from the membrane while reducing the laminar boundary layer on the membrane surface; both key factors in enhancing flux rates and improving MBR operations. The FLEXX-CAP is expected to substantially lower total costs to operators and further accelerate the replacement of traditional polymeric membranes with advanced ceramic membrane technology. Ceramic membranes are well known for their robustness, offering an extended lifespan, superior cleaning flexibility, and the ability to manage challenging feed waters, including those with high levels of oil and

grease. Moreover, ceramic membranes ensure consistent water quality and require less maintenance, reducing the operational challenges of fiber breakages and other polymeric membrane limitations. FLEXX-CAP sets a new industry standard by enabling the first-ever membrane technology that is not only unbreakable and always cleanable but also movable. This innovation uniquely combines the most advantageous features of all membrane technologies into a singular, superior solution.

Dr. Martin Kaschek, Chief Science Officer at CERAFILTEC, noted, "After over two years of dedication, we are excited to announce a significant milestone for our technology. We have always known that micro-movements on the membrane surface reduce the boundary layer and disrupt laminar flow, causing solids to detach and substantially enhancing ceramic MBR performance. We are thrilled to have developed a product that not only achieves this but also improves MBR operations and costs." The introduction of FLEXX-CAP comes at a time when CERAFILTEC's presence in the global MBR market is expanding. Most recently, the company secured MBR projects in Italy, Mexico, Greece, the UAE, and Africa, replacing polymeric membranes. According to Grand View Research, the size of the global membrane

bioreactor market was USD 3.35 billion in 2022, and is expected to grow at a compound annual growth rate of 7.0% from 2023 to 2030, for which ceramic membranes is playing a vital role in supplying a more reliable technology solution and more sustainable future.

About Cerafiltec

CERAFILTEC, headquartered in Germany, is at the forefront of ceramic ultrafiltration membrane technology, revolutionizing water & wastewater treatment globally. Our technology offers unmatched economic benefits for a variety of applications, including upgrades of MBRs, drinking water plants, and tertiary treatment plants with ceramic membranes. We directly replace polymeric membranes, upgrade gravity sand filters, and support greenfield projects. Our solution enhances water quality, increases quantity, and simplifies operations while reducing the total cost of ownership. Committed to a sustainable future, CERAFILTEC aims for CLEAN WATER. EVERYWHERE.

Media Contact:

Ann Seamonds Seamonds & Company Public Relations
M: 978-764-5528
E: seamonds@seamonds.com



IPUMPNET UNVEILED BY THE UNION MINISTER OF JAL SHAKTI & WINS ET INFRA FOCUS AWARD 2024 FOR BEST BRAND IN WATER TECHNOLOGY

The Hon'ble Union Minister of Jal Shakti, Shri C. R. Paatil, has unveiled iPUMPNET, a revolutionary solution developed indigenously by Pump Academy Private Limited, during the 8th India Water Week expo at Bharat Mandapam, New Delhi, on 17th September 2024. He was accompanied by Ms. Vini Mahajan, Secretary-Jal Shakti; Ms. Debashree Mukherjee, Secretary Water-Resources, River Development & Ganga Rejuvenation, along with other senior officials of the Ministry.

During his visit to the Pump Academy booth at the India Water Week Expo, the Hon'ble Union Minister of Jal Shakti was briefed about the iPUMPNET system, which shows great potential in making water pumping stations smart and responsive. This cutting-edge system harnesses the power of artificial intelligence (AI) and the Internet of Things (IoT) to enhance the efficiency of water pumping stations and promotes a smarter, more sustainable approach to water management.

With its advanced remote monitoring and control capabilities for pumping infrastructure, iPUMPNET revolutionizes crucial water asset management by improving efficiency in water distribution, wastewater management, and irrigation. The system boosts productivity by up to 35%, reduces energy use by up to 25%, minimizes water loss, cuts carbon emissions, and extends equipment lifespan by up to 50%, ultimately saving costs and enhancing sustainability. Pump Academy Private Limited has been conferred with the prestigious Economic Times Infra Focus Award 2024, earning recognition as the Best Brand in Water Technology for its revolutionary solution, iPUMPNET.

The award recognizes the company's innovative approach to water management and its significant contribution to the water infrastructure sector.

It was presented during the ET Infra Focus Summit held in Delhi on September 19, 2024. This recognition underscores the company's commitment to developing solutions that address critical water management challenges while promoting sustainability and resource optimization.

Mr. Anil Sethi, the Founder Chairman of Pump Academy Private Limited, commented: "The advanced technology embedded in iPUMPNET has great potential to optimize water asset management across India. By leveraging AI and IoT, we are not just improving efficiency; we are paving the way for a more sustainable and water-secure future. This solution aligns perfectly with the government's vision for smart water management and could play a crucial role in addressing India's water challenges. We are elated by the appreciation from the Hon'ble Minister and look forward to contributing to the nation's water conservation efforts with technology interventions.

He further said that: "We are deeply honoured to receive this prestigious recognition from the Economic Times."

iPUMPNET represents our dedication to innovation in water technology. This award not only validates our efforts but also motivates us to continue pushing the boundaries of what's possible in smart water management. We believe that technologies like iPUMPNET will play a crucial role in shaping a water-secure future for India.

Brief about Pump Academy:

Pump Academy Private Limited was established with a mission to encourage innovation and leverage digital technologies to improve the efficiency of pump operation and maintenance in water utilities and industries.

Pump systems contribute to approximately 20% of the world's electrical energy demand, and in certain applications, they account for upto 50% of electrical energy usage, being the largest consumers of electricity. Pumping stations play a vital role in extracting and distributing water to meet the diverse needs of individuals, industries, and agriculture. The maintenance, energy consumption, and longevity of pumping stations are often overlooked. Recognizing this gap, Pump Academy has emerged as a pioneering organization, offering innovative solutions, iPUMPNET, to optimize pumping stations, extend their lifespan, improve operational efficiency, and reduce electrical consumption and carbon emissions. Pump Academy is revolutionizing the industry with its innovative approaches, setting a new standard in the optimization and management of pumping stations.



SIEMENS

SIEMENS XCELERATOR: DMG MORI, RENISHAW AND SIEMENS WORK TOGETHER AS INNOVATION PARTNERS AND EXPAND DIGITAL OFFERINGS AROUND THE MACHINE TOOL

- Siemens Xcelerator creates powerful ecosystem of partners to accelerate digital transformation.
- New scalable offers around the consistent digital twin of machine tool, control and workpiece.
- New solution for tool condition monitoring enables traceability and closed loop manufacturing.

Siemens is consistently expanding its eco-system in the machine tool industry. Together with its partners DMG MORI and Renishaw, the technology company is presenting new offers as part of Siemens Xcelerator. With a focus on scalability and high flexibility, CNC users now have additional intelligent machining - Applications that seamlessly complement Siemens solutions and, on this basis, deliver high added value. The open digital business platform Siemens Xcelerator thus creates a powerful eco-system of partners to jointly accelerate the digital transformation of industry.

Renishaw: Quality control of tools at the highest level

Renishaw's Siemens Xcelerator offering consists of a solution for measuring and monitoring the condition of tools. The basic system is already offered by DMG MORI. The solution is based on a high-precision laser system for tool measurement from Renishaw and the edge-based analysis software Analyze MyWorkpiece /Monitor from Siemens. The condition monitoring solution enables automatic validation of tool wear and timely automatic replacement of worn tools. The solution also ensures that the production process is traceable due to data evaluation. The rapid tool inspection through optical scanning reduces manual intervention and thus disruption within of the manufacturing process.

The data-driven analysis approach ensures traceability of the manufacturing process, which closes the loop to quality assurance and production planning (closed loop manufacturing). The solution will be presented for the first time at the AMB at DMG MORI (Hall 10) and at Renishaw (Hall 7, Stand A11) on a DMU 60 eVo.

DMG MORI: Scalable offering around the consistent Digital Twin for machining with machine tools on the Siemens Xcelerator Marketplace

The manufacturer of high-precision machine tools, DMG MORI, is expanding its range of integrated digital twins for machining with machine tools on the Siemens Xcelerator Marketplace. Specific solutions for the digital twin of the control system, machine and workpiece are presented for a wide range of applications. Machining processes can be optimized before the real machine is put into operation. Based on the Digital Native CNC Sinumerik One, the portfolio includes a suitable digital twin for the user - regardless of the shop floor or CAM application. This means, for example, that a machine operator in the Shopfloor can purchase a Digital Twin package that helps them create a simple NC program on the PC and thus perform a collision check without using a machine. A CAM user can, in turn, create sophisticated parts in a CAD environment and thus achieve a quick first Validate the program. With the new, scalable Digital Twin offerings, customers can now individually determine the scope of the simulation they need and purchase the corresponding packages as needed.

The DMG MORI Digital Twin for machining with machine tools helps to avoid programming errors that cause rejects and damage to the real machine. It enables production to be ramped up up to 40 percent

faster, thus significantly reducing the energy consumption of the real machine. Even new processes can be digitally set up while the machine is in operation. It also helps to minimize unproductive machine times, such as test processing, by up to 75 percent. This is because testing and running programs is moved from the real machine to the virtual world. The DMG MORI machines DMU 50 3rd generation, CTX beta 450 TC and NZ TRE rely on the Sinumerik One with its performance and modern way of shop floor programming. The machines and their consistent digital twin can be seen at the DMG MORI stand at the trade fair to experience live in Hall 10.



Renishaw's Siemens Xcelerator offering consists of a solution for measuring and condition monitoring of tools.



With the new, scalable Digital Twin offerings from DMG MORI, customers can now individually determine the scope of the simulation they require and purchase the corresponding packages as needed.



SEEQUENT AND THE NEW ZEALAND HIGH COMMISSION HOSTS RECEPTION TO SUPPORT INDIA'S VISION FOR VIKSIT BHARAT 2047

New Delhi, October 03 2024 - In a distinguished gathering held last week, Seequent's Civil Segment Director, Pat McLarin, hosted an evening reception to showcase how Seequent, The Bentley Subsurface Company, could support India's ambitious Viksit Bharat 2047 vision. The event was held at the New Zealand High Commission and co-hosted by HE Patrick Rata, High Commissioner and New Zealand Trade and Enterprise, the country's trade promotion agency.

The event was attended by Government officials, key infrastructure leaders from both the private and public sectors, and academic experts who convened to explore pathways towards India's journey of becoming a \$30-trillion developed economy by 2047. The Viksit Bharat roadmap emphasises the need for the nation's infrastructure to become more efficient, resilient, and sustainable to achieve this goal.

The evening started with a welcome address by Manpreet Chhatwal, Senior Account Manager, Seequent followed by a speech by New Zealand's High Commissioner to India, HE Patrick Rata. In his speech, the High Commissioner highlighted the rich bilateral relationship between India and New Zealand and how both countries are striving for better trade, economic and business opportunities in future. Welcoming Seequent to the High Commission, he also talked about the strong reputation of New Zealand companies, known for their great creativity, technology and innovation, and said Seequent was an example in this regard.

The keynote address by Seequent's Civil Segment Director, Pat. McLarin, highlighted how the company's cutting-edge technology is uniquely positioned to align with India's vision. As the world leader in subsurface modelling, Seequent helps connect the natural environment with the built world, enabling

organisations to manage the impact of their infrastructure projects at every stage of development.

"Seequent is committed to being an integral part of India's transformative journey," said McLarin. "With our deep expertise in earth modelling and data management, we aim to enhance infrastructure efficiency, resilience, and sustainability, supporting India's ambitious vision for 2047." Pat also showcased case studies of projects implemented in India during his talk specifically with Engineers India Limited (EIL) and AFRY.

EIL partnered with Seequent to design the largest underground energy storage facility in India. To better understand the underground the EIL team used Seequent's Leapfrog Works to create highly visual 3D subsurface models, GeoStudio for insights into seepage analysis and, Seequent Central to enable easy collaboration and communication across stakeholders. Additionally, Seequent's technologies also played a role in The Pinnapuram Integrated Renewable Energy Project (IREP) being developed in Andhra Pradesh, which is a combined solar, wind and pumped storage hydroelectric power project set to deliver on-demand power across India. AFRY, a leading international engineering consultancy, has delivered a detailed design for the 1200MW pumped storage hydroelectric facility, using Seequent's GeoStudio software to analyse slope stability and stress-deformation, and seepage modelling to assess the integrity of rockfill dams.

The evening concluded with networking drinks and dinner, offering a platform for further dialogue between Seequent, the New Zealand delegation, India's key infrastructure leaders, and academic experts.

About Seequent

The Bentley Subsurface Company, helps organisations to understand the underground, giving them the confidence to make better decisions faster. Seequent builds world-leading technology that is at the forefront of Earth sciences, transforming the way our customers work.

Every day, we help them develop critical mineral resources more sustainably, design and build better infrastructure, source renewable energy, and reduce their impact on the environment.

Seequent operates in 150 countries while proudly maintaining headquarters in New Zealand.

Newsroom:

<https://www.seequent.com/company/news-media/>
Seequent on LinkedIn and X

Media Contact

Press Contact: External Communications Team

T: +64 2150 1036

E Mail: externalcomms@seequent.com



TREATMENT TECHNOLOGIES FOR POLY- AND PERFLUOROALKYL (PFAS) SUBSTANCES IN WATER AND OTHER WASTES

Dr Mayur J. Kapadia

Trainer, Writer, Editor & Former AGM, Quality Control Dept, GNFC Ltd.

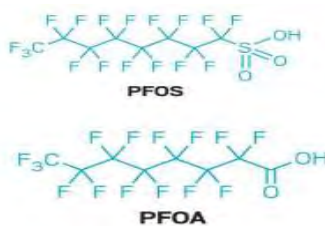
Per- and polyfluoroalkyl substances (PFAS) are a set of substances that have been used since the 1940s in various industrial applications like paper making, textile mills, electroplating, firefighting foams and in consumer products like non-stick cookware, stain repellent clothing, food contact materials, paints, cosmetics, detergents and other cleaning products. The term 'PFAS' is accepted as the overarching term for the entire class of these synthetic compounds. There are more than 9000 known PFAS compounds, but the global regulation list covers less than 50 compounds. Out of these many PFAS compounds, the most widely used compounds in early industrial applications were...

- **PFOA:** Perfluoro octanoic acid, which has an eight-carbon chain length with a carboxylic acid functional group at one end, and
- **PFOS:** Perfluoro octane sulfonic acid, which has eight carbons in an alkyl chain with a sulfonic acid end group.

Therefore, PFOA and PFOS are the first two compounds widely studied in the PFAS compound class.

OCCURRENCE & TOXIC

The ubiquitous presence of PFAS in industrial waste waters is attributed to PFAS-producing or -using



industrial sites. However, their presence in municipal waste waters, such as in septic tanks and office buildings, is suspected either due to environmental degradation of polyfluorinated microfibers released by stain-resistant clothing during laundry, or human excretion after oral exposure. Often, a portion of the PFAS in wastewater effluent can be ascribed to PFAS in the community's tap water. PFAS detected in wastewater and biosolids include not only the two most studied chain PFAS and polyfluorinated compounds. PFAS, perfluoro octane sulfonic acid (PFOS) and perfluoro octanoic acid (PFOA), but also short-chain PFAS and polyfluorinated compounds.

The industrial utility of PFAS compounds is due to their strong carbon-fluorine bond, and as a result these PFAS compounds were thought to be very inert and stable. Unfortunately, that also means that they do not break down in the environment and can stick around for decades. Therefore, PFAS have become pervasive and present throughout ecosystems and our daily

lives.

The significance of knowledge about PFAS's presence and quantitation lies in their persistence, bioaccumulation, and toxicity. PFOA has probable links with several toxicological end points, including kidney cancer, testicular cancer, and high cholesterol. PFOS has been linked with reproductive toxicity, immune effects, and kidney toxicity in laboratory animals. Biomarker studies have indicated similar effects in humans. Therefore, PFOA and PFOS have been phased out in the countries like United States and replaced by short-chain PFAS, polyfluorinated compounds, and perfluoro ethers. These shorter-chain alternatives have shorter half-lives in the human body. Less is known about the toxicity of short-chain PFAS, but precaution is warranted on the basis of the similarity of their persistence to that of PFOA and PFOS.

HUMAN EXPOSURE

Since PFAS have been widely used for decades and do not easily break down, these compounds have been detected in almost every ecosystem that interacts with humans, such as drinking water, wastewater, soils, food, and air. PFAS are poorly removed by Waste Water Treatment and conventional Drinking Water treatment plants. Without appropriate mitigation

methods, human exposure could occur from wastewater through various means:

- **Treated water discharge** – Once wastewater is treated, it is discharged into the local environment. If this treated effluent contains PFAS, it then contaminates its receiving water that may be a source water for a downstream public water supply.
- **Waste water reuse** – In certain cases, the waste water is comprehensively treated to the standards of potable water. Intended use of treated waste water could expose humans and animals to PFAS.
- **Biosolids** – Wastewater treatment processes also produce a significant amount of sludge, often referred to as biosolids when applied as fertilizer. This application potentially introduces PFAS into the food chain through plant uptake as they are bio accumulative.
- **Leaching** – When biosolids of waste water treatment plant are not used as fertilizers, the alternative is to send them to a landfill site, from where PFAS compounds can leach into the ground water.

TREATMENT OF PFAS

Removal of PFAS from effluents prior to discharge is an important downstream strategy for preventing continued emissions. As a matter of fact, PFAS are mostly not removed with conventional primary and secondary treatment steps for wastewater, although some adsorption to sludge may occur.

Existing wastewater treatment technologies that are effective for the removal of PFAS from water are very few, which mainly include thermal destruction, ion exchange, membrane filtration and adsorption. But these technologies are energetically and financially costly, particularly for complex matrices. Extensive pretreatment is often required.

THERMAL DESTRUCTION BY INCINERATION

Incineration is a well-known and energy intensive mineralization pathway for the removal of harmful compounds using heat, where high temperatures ranging from 600°C to 1000°C are applied to destroy PFAS. Though this is an established process for treatment, there are possibilities of release of gaseous toxic substances like furan and dioxins into the environment while dealing with degradation of certain PFAS compounds. In such cases, a polishing step with air filters is necessary to remove the vaporized contaminants.

THERMAL DESTRUCTION BY PYROLYSIS / GASIFICATION

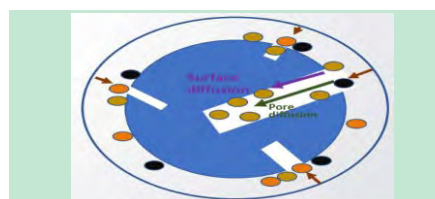
Both these processes decompose materials at elevated temperatures, but decomposition by Pyrolysis is in an oxygen-free environment, whereas Gasification uses small quantities of oxygen. The oxygen-free environment in pyrolysis and the low oxygen environment of gasification distinguishes these techniques from incineration. Pyrolysis, and certain forms of gasification, can transform input materials, like biosolids, into a biochar while generating a hydrogen-rich synthetic gas (syngas). These processes potentially destroy PFAS by breaking apart the chemicals into inert or less recalcitrant constituents. However, this mechanism, as well as evaluation of potential products of incomplete destruction, remain a subject for further investigation and research.

ION EXCHANGE

Anion exchange resins have been utilized as treatment methods for separating PFAS from liquid streams, often at a fraction of the cost of other separation technologies such as nanofiltration and reverse osmosis. It is commonly used during groundwater site remediation and drinking water treatment. This treatment involves ion exchange onto a positively-charged surface. The surfaces of the resins become saturated over time and no longer able to remove PFAS. These resins may or may not be amenable to regeneration. Spent resins are either landfilled or incinerated. The former may lead to PFAS ending up in the landfill leachate.

GRANULAR ACTIVATED CARBON (GAC)

Granular activated carbon (GAC) is generally used to separate PFAS during manufacturing as well as drinking water treatment. It removes PFAS compounds from liquid by surface adsorption. The surface become saturated over time and no longer able to remove PFAS. GAC can be regenerated but eventually loses its effectiveness and must be disposed. Spent GAC is either disposed by landfilling or incineration. Landfill disposal may again lead to PFAS leaching in ground waters.



HIGH-PRESSURE MEMBRANES (NANOFILTRATION /RO)

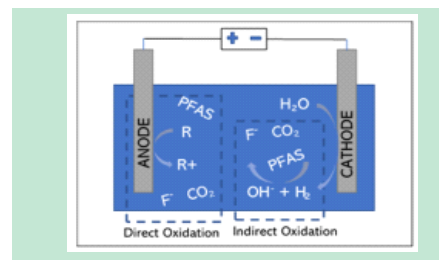
These types of membranes are typically more than 90 percent effective at removing a wide range of PFAS, including shorter chain PFAS. RO membranes are tighter than nanofiltration membranes. Therefore, while nanofiltration membrane will reject hardness to a high degree, but pass sodium chloride; the reverse osmosis membrane will reject all salts to a high degree. This difference allows nanofiltration to remove particles while retaining minerals that reverse osmosis would likely remove. Approximately 20 percent of high-strength concentrated waste is difficult to treat or dispose. Like in other treatments, the concentrated waste needs to be treated through thermal degradation.

EMERGING TREATMENT TECHNOLOGIES

The efficiency and practicality of the treatment technologies for per-fluoroalkyl and poly-fluoroalkyl substances (PFAS) removal are not cost-competitive sometimes. Also, successful removal of PFAS has been to a limited level in aqueous streams only. Further, the biological approaches to treat PFASs are extremely limited and are not currently considered as viable. Nevertheless, the treatment technologies are still evolving and they are considered as effective approaches for PFAS removal and have shown promising results for long chain and some short chain PFAS compounds. However, much work on application of these technologies on large scale commercial treatment facilities is not done.

ELECTRO CHEMICAL OXIDATION

This technology uses electrical currents passed through a solution to oxidize persistent organic pollutants, such as PFAS. As shown in Figure, both direct and indirect oxidation mechanisms are possible. Direct oxidation can result by electron transfer from the PFAS compound to the anode, while indirect mechanisms involve electrochemically-created, powerful oxidants known as radicals (such as hydroxyl radical, OH).

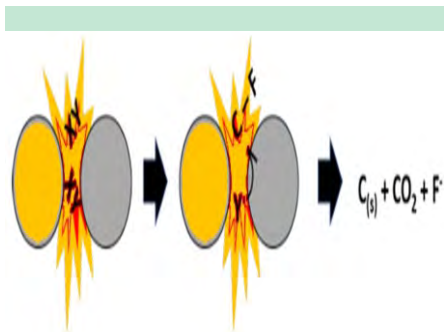


This is a promising technology in view of low operating costs, operation at ambient conditions, ability to be in a mobile unit, and no requirement of

chemical oxidants. However, much work on commercialization of this technology is not done. Various other factors like disposal of generated toxic byproducts, incomplete destruction of some PFAS, efficiency losses due to mineral build up on the anode, and high cost of the metal electrodes also need attention before adoption.

MECHANOCHEMICAL DEGRADATION

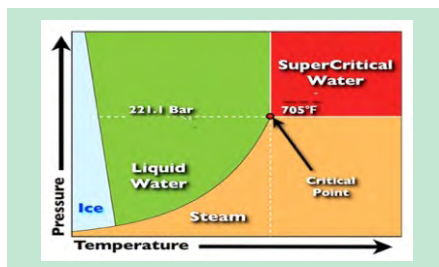
In this technology, the destruction of PFAS is undertaken in a high-energy ball-milling device. The technique does not require solvents or high temperatures to remediate solids and therefore can be considered a “greener” method of treatment. Agents like silica, potassium hydroxide, or calcium oxide are added as co-milling agents to help react with fluorine and to produce highly reactive conditions. The crystalline structures of the co-milling reagents are crushed and sheared by high energy impacts from stainless-steel milling balls in the rotating vessel.



This method performs best with dry, sandy soil. The effects of various matrices, the effectiveness of different co-milling reagents, the possibility of loss of volatile PFAS, performance efficiencies etc should be studied before this technology is applied at large scale.

SUPERCritical WATER OXIDATION

Water above a temperature of 705 °F and pressure of 221.1 bar is considered “supercritical”, a special state of water where certain chemical oxidation processes are accelerated. This technique has been used successfully to treat various halogenated waste materials containing fluorine, chlorine, bromine, or iodine for many years. Organic compounds, usually insoluble in water, are highly soluble in supercritical water. In the presence of an oxidizing agent (such as oxygen), supercritical water dissolves and oxidizes various hazardous organic pollutants.



This technique has a potential for PFAS destruction by breaking the strong carbon-fluorine bonds decomposing them into a non-toxic waste stream. Alongwith potential, this technology also presents several technical challenges like buildup of corrosive gases during the oxidation reaction, precipitation of salts, and high energy requirements.

PHOTODEGRADATION BY UV LIGHT (PHOTOLYSIS)

Continued exposure of PFAS to radiation with wavelengths less than 320 nm, known as actinic wavelengths, results in photodissociation via photolysis, in which, the dissociation of organic pollutants is motivated by the adsorption of photons, thus providing a new reaction pathway via the formation of electronically excited reactive species.

Two forms of photolysis are capable of degrading PFAS: (1) Direct photolysis and (2) Indirect photolysis. In direct photolysis of PFAS, photons are directly absorbed by the PFAS, causing it to undergo photodegradation. For indirect photolysis, separate compounds like UV/H₂O₂, UV/Ozone, and photo-Fenton absorb photons and then work as an intermediate to react with PFAS. In this regard, for a practicable photolysis process, the strong C-F bond in PFAS is cleaved by UV irradiation into fluoride (F⁻) ions.

PHOTOCATALYTIC DEGRADATION

Photocatalysts present in water under UV light irradiation produce reactive species such as hydroxyl radicals as well as other photochemically generated reactive intermediates.

These reactive species actively react with pollutants such as PFAS to degrade them into harmless intermediates.

SONOCHEMICAL / ULTRASOUND DEGRADATION

Sonochemistry involves the use of acoustic field to generate radicals to degrade contaminants in various aqueous media. More specifically, ultrasonic irradiation causes acoustic cavitation (i.e. bubbles collapsing in solution due to sound waves), which creates high temperature and pressure conditions resulting in the pyrolytic degradation of PFAS at the bubble-water phase. In these bubbles, the average internal vapor temperature increases to 4000 K, while

bubble-water interface temperatures are generally in range from 600 K to 1000 K. These momentary high temperatures assist in the in-situ pyrolysis of water into hydrogen and oxygen atoms as well as hydroxyl radicals in the interfacial and vapor regions of each collapsing bubble. The resulting radicals react quickly with organic molecules at the bubble interface or in the bubble interior gas-phase. PFAS compounds are decomposed at the interfacial area between the bulk solution and the cavitation bubbles.

This technique is found highly effective at bench scale. However, PFAS treatment under sonication at a large scale has not been studied much. Optimization of frequency and power is also required to be addressed while considering PFAS mineralization via sonication.

ADVANCED OXIDATION / REDUCTION PROCESSES

Highly reactive oxidant species (ROS) such as hydroxyl and sulfate radicals are employed in advanced oxidation process to destroy C-F bonds and separate the head groups, in addition to scissoring the CC chains. In advanced reductive process, UV / sulfite are employed in which the hydrated electrons cleave the resistant C-F bonds.

Since the toxicity and stability of PFAS are more likely attributed to the fluorine atoms, scissoring of carbon skeleton without cleavage of C-F bonds induces shorter chain PFAS that still possess toxic and persistent nature. Notwithstanding the numerous studies reporting the successful defluorination and degradation of various PFAS, the degradation pathways and mechanisms are not fully understood.

PLASMA TECHNOLOGY

Plasma is a moderately or entirely ionized gas formed by electrical discharge. It contains free neutrons, electrons, free radicals, ions, and atoms in heightened energy states. In terms of temperature and electron density, plasma systems can be characterized into two groups: nonthermal plasma process and thermal plasma process.

Generation of thermal plasma through torches or radiofrequency arc discharge is characterized by increased energy and plasma elements in thermal equilibrium. High energy ions in plasma continuously degrade the carbon chains of PFAS. Non-equilibrium or non-thermal plasma is based on the production of highly reactive atomic hydrogen and oxygen, hydroxyl and hydroperoxyl radical, nitrogen-species, aqueous electrons etc. Since nonthermal plasma contains such a rich and reactive chemistry, it presents promise for its use for removal of very recalcitrant compounds.

CONCLUSION

Remediation of Poly- and perfluoroalkyl substances (PFAS) in the environment has rapidly increased due to growing concerns of environmental contamination and associated adverse toxicological effects on wildlife and humans due to bioaccumulation and extreme persistence. Although, PFAS are highly recalcitrant to conventional waste water treatment processes, there are some effective techniques available. But they involve exceedingly high energy costs, capital or operational costs. Most of the separation and destruction techniques have their own limitations in field applications. They demonstrate capability of removing long-chain PFAS. During treatment, the PFAS might degrade into short-chain PFAS, which might be more stable in the environment. The degradation can also result in the generation of novel PFAS which are not well-established and may have negative consequences for the environment, human beings or animals. Therefore, the treatment method is required to be chosen on the basis of initial concentration of PFAS and the treatment objectives.

The biological approaches to treat PFAS are extremely limited and are not currently considered as viable. Various novel and advanced techniques for treatment of wide array of PFAS compounds are found promising and effective on laboratory or bench scale. Therefore, it is essential to understand the removal mechanisms to optimise the advanced treatment processes. Careful selection of a combined, hybrid and effective treatment methodology in an integrated processing unit would be an ideal approach for treatment of PFAS in the wastes.

ABOUT THE AUTHOR



Dr Mayur J. Kapadia
Educator, Technical Content Creator,
Trainer, Writer, Editor & Former AGM,
Quality Control Dept, GNFC Ltd

Dr Mayur J. Kapadia, MSc, PhD, is an Educator, Trainer, Editor and Technical Content Creator. He served M/s GNFC Ltd in capacity of Add Gen Mgr & Lab Head for its Bharuch & Dahej (Gujarat) locations. He possesses professional industrial experience of 40 years in the fields of Quality Control of Chemicals / Fertilizers / FMCG products, New Laboratory Set up, Cooling Water Management, ISI certification, and many other areas. He has to his credit technical suggestion awards, nearly 30 publications in journals / magazines and >20 presentations in conferences. He has been conducting full day training programs on Quality Control, NABL, Instrumental Analysis, ISI certification, Cooling Water Management, etc for industry professionals.

He is an active member in technical committee of Bureau of Indian Standards (BIS), which has conferred upon him a 'Certification of Appreciation' for his immense contribution towards establishing and improvising various Indian Standards. He also has been rendering technical services to various organizations for quality improvement, process trouble-shooting and analytical aspects.

EverythingAboutWater Annual BUYER'S GUIDE Directory.

India's No. 1 destination for suppliers.

With a total circulation of more than 55,000 copies across India, the annual buyer's guide directory is one place where your products need to be seen.



Follow us on:     



List your
products for
FREE

OPT for
paid listing

Choose to
advertise

WEBSITE
www.eawater.com

UNLOCKING THE POTENTIAL OF DIGITAL WATER AND MONITORING IN WATER MANAGEMENT

Badusha KS

Chief Technology Officer, SmarterHomes Technologies Pvt. Ltd.

INTRODUCTION:

India faces a pressing urban water crisis that requires immediate attention. According to a study, the top 24 cities in India, with a combined population of nearly 200 million, generate a daily demand of 30,000 million liters of water, based on an average consumption of 150 liters per person. This figure excludes additional demand from commercial and other sectors. Unlike electricity, most people are unaware of how much water they use. Can we continue to take this natural resource for granted indefinitely? Can we reduce urban migration driven by opportunities? The answer is clearly no.

WHAT IS DIGITAL IN WATER?

Digital transformation is touching every aspect of our lives. Water consumption and management is not to be left behind, especially now that it is turning into a crisis stage in urban life. So, the obvious question is "How can we bring in effective digital transformation in water consumption and management, in order to optimize water availability and usage among urban population?". With this as the end objective, let's investigate the goals to be achieved to bring this about.

- Effective measurement of water consumption, ideally in real-time
- A mechanism to charge the consumer, based on actual consumption, as against a flat bill or billing based on the size of residence etc. In a residence community, this may be called Sub Metering.

- Leakage detection: Prompt detection and alerting the consumer/management of leaks, both small but continuous or sudden flow of large volume of water, like a pipe burst. A mechanism to stop water flow (like a digitally manageable valve) will be a major value add to such a system.
- Advanced analytics to empower consumers to conserve water.
- A tool for community management / municipal bodies to reduce leakage as well as understand demand patterns so that it can be better served.

Digital water thus refers to the use of digital technologies in water infrastructure systems to improve efficiency, sustainability, and resilience. Traditional water management often relies on manual processes and outdated systems, which result in inefficiencies, isolated data, and limited understanding of water usage. Digital water solutions tackle these issues by modernizing water infrastructure, allowing for real-time monitoring, data-driven decision-making, and predictive maintenance.

We are not going into other potential benefits such as energy conservation due to water savings and positive impact on environment due to lesser abstraction of ground water etc. These can be discussed at another time.

COMPONENTS OF DIGITAL WATER

- A sensing mechanism to measure the flow of water in a pipe, with the necessary accuracy.
- Resilient to air inside pipe, reverse flow, vibration in the pipe and other environment factors.

- Transmitting this data with a time stamp through wireless technologies to a remote location where data can be aggregated and analyzed
- Web or Mobile Apps, to enable consumers to understand their water usage pattern.
- Applications for aggregate service providers such as municipality and housing societies to enable them to understand demand patterns, actual consumption per residential dwelling, facilitation for billing based on consumption etc.
- Diagnostic tools for monitoring the health of the system and take such proactive actions to ensure seamless working

HOW DIGITAL WATER HELPS IN ACHIEVING EFFICIENCY:

Now, let us look at how adoption of the technologies helps with respect to water conservation.

The objective of measurement in case of water is to improve the reliability of measurement and build confidence in the user that what is measured and used for billing is the actual volume of water consumed. Mechanical water meters used in past years were prone to errors due to clogging of its moving parts and drifting of its accuracy over a period. Newer technologies such as ultrasonic flow sensors coupled with ability to transmit data automatically has eliminated the above disadvantages.

Transmission technologies have seen a great advancement ever since the advent of mobile phone technologies. NB-IOT, LORA, GSM, WMBUS are different types of communication technologies with some advantages for each of them.

For example, LORA is a low power long range communication. This enables wireless communication from sensing devices to a data gateway to eliminate the need for wiring as well as manual reading of sensed data. GSM technologies use the network enabled by the mobile phone companies to transmit data using their network. Often it may be necessary to use multiple technologies in combination also. The key is to adopt the right technology for transmitting data which is fit for the location and is cost effective.

Data aggregation and analytics is now possible at scale due to the tremendous advancements in storage and analytics. Companies who are in the forefront such as Google, Amazon and Microsoft have mastered this art and are providing tools and storage for large data analytics on their cloud platform. The good thing is these are secure, reliable and scalable. Of course, we need to program and customize them to meet our requirements.

User interface technologies have also similarly leapfrogged. The biggest advantage that we see with well-designed user interfaces is their power to create the emotional connect with water. Establishing this emotional connect is the key to water conservation and often is the pinnacle of all the digital technologies working together.

We can throw in a lot of analytics and other features to enable behavioral change in customers towards the use of water. For example, have you improved your water consumption pattern over the months? Digging deeper, which part of the house consumed the most water? Is it the kitchen or the master bedroom bath? Look at differently, what time was the water consumption highest in my house and in that part of the house? Is there any correlation that can be derived from high usage and routine events in the household, like the time the servant maid spends in the house? How does my usage pattern compare with others in the neighborhood? In the city? Globally? Is there a leakage in my house? Can I shut off water remotely if there is a leakage? Can I find out if there is any water consumption in my house when I am on a vacation?

Billing based on water consumption is a critical component of water conservation strategy. Digital water enables this seamless integration with billing software either in societies or in utilities through necessary APIs

Since digital water management systems are not as simple as the legacy mechanical meters, providers of such systems shall have mature diagnosis and maintenance systems, and infrastructure and personnel deployment to ensure continuity of service and continued system enhancements.

OTHER AREAS FOR DIGITAL WATER IMPLEMENTATION:

Using the principles outlined above, we can measure and monitor the quality of water and wastewater generated (both raw and treated) and implement data analytics based systems for managing energy consumption based on patterns of flow and quality of water. Similarly, the quality and quantity of treated wastewater can be sent to regulatory authorities for remote monitoring. These same principles can be extended to operation and maintenance of core assets such as water treatment plants, sewage treatment plants, pumping station etc. An integrated operation thus would enable conservation of not only water, but also energy and environment.

Overcoming challenges in adoption: If there are so many benefits why is adoption so low? One of the main reasons is that consumers are used to getting water at very low cost or even free, and in denial of the fact that that is no more the case now. In residences where tankers are the principal source of water, water supplies are pricing water based on demand and supply situation. Once the awareness of this reality sets in, the cost benefit of adoption of digital water becomes apparent purely on return on investment principles. While this may be a long road in this country, water champions across urban India are proactively adopting measures to conserve water and recycle and reuse water using technologies. Our belief is that these early adopters would set the trend for a sea change in technology adoption in the water sector for saving Urban India from a water crisis.

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.

CONCLUSION

In conclusion, digital water and monitoring technologies have the potential to revolutionize water management by providing real-time insights, precise measurement, and proactive management capabilities. By leveraging advanced sensors, connectivity solutions, and data analytics, digital water solutions empower utilities and consumers to track, measure, and manage water usage effectively, leading to improved efficiency, sustainability, and resilience in water infrastructure systems.

As we navigate the complex challenges posed by water scarcity and climate change, the importance of monitoring and measuring in achieving water savings cannot be overstated. Digital water and monitoring technologies offer a powerful toolkit for stakeholders to track, measure, and manage water usage effectively, driving efficiency, sustainability, and resilience in water management practices. By harnessing the insights provided by real-time data and analytics, we can pave the way towards a more water-efficient and sustainable future for generations to come.

ABOUT THE AUTHOR



Badusha is a veteran in the technology industry having contributed to mission critical projects in nuclear, defence and health. He has been at the forefront of technology development for leading organizations such as HP, Wipro, Intel, Nuclear Power Corporation, Sunlux Technologies and Life Signals. He is an authority on product and software architecture with a goal of making them reliable and scalable.

Badusha KS

Chief Technology Officer, SmarterHomes Technologies Pvt. Ltd.

LEAVE THIS WORLD BETTER THAN YOU FOUND IT

Dilip Yewalekar, Senior Vice President,
Jain Irrigation Systems Ltd

Jain Irrigation Systems Ltd, is a corporate company with a mission "Leave this world better than you found it", a diversified entity of turnover of a billion plus US dollars and has a global presence in 126+ countries and 11,000+ dealers and distributors worldwide. Today with over 11,000 + committed employee strength worldwide, we have established our leadership in diverse products like Micro & Sprinkler Irrigation, Agricultural Inputs, Agro-Processed Products, Plastic Pipes & Sheets as well as in the field of renewable energy.

CORPORATE PHILOSOPHY

MISSION

Leave this world better than you found it.

CREDO

Serve and strive through strain and stress; Do our noblest, that's success.

VISION

Establish leadership in whatever we do at home and abroad.

GOAL

Achieve continued growth through sustained innovation for total customer satisfaction and fair return to all other stakeholders. Meet this objective by producing quality products at optimum cost and marketing them at reasonable prices.

GUIDING PRINCIPLE

Toil and sweat to manage our resources (men, material and money) in an integrated, efficient, economic and sustained manner. Earn profit, keeping in view commitment to society and environmental.

QUALITY PERSPECTIVE

Make quality a way of life. Work Culture Work is life, life is work.

START UP FROM TRADING



'ENTERPRISE INSTEAD OF MONEY, HARD WORK INSTEAD OF WEALTH AND RESPONSIBILITY INSTEAD OF GLORY' Padmshri Dr Bhavalalji Jain.

Inspired by a quote, "Agriculture: a profession with future", beginning from dealership of Tractors, PVC pipes, farm equipment, agro-inputs seeds, fertilizers, pesticides etc. in small town Jalgaon and sales grew up from Rs. 1 million (1963) to 110 million (1978). These formative years helped the company to build a unique and lasting enterprise. This was achieved through consistent high standards of performance and personal behaviour on the one hand and a strong sense of commitment for meeting targeted volumes. Dealings with national and international principals was a contributing factor towards building these attitudes. In time, Jain Irrigation came to be recognized as a reputable, trustworthy and prestigious house.

IRRIGATION (MICRO/DRIP/SPRINKLER)

Jain Irrigation Systems Ltd (JISL) is the largest Micro-Irrigation company in the world. The Micro-Irrigation Division manufactures a full range of precision-irrigation products. Jain irrigation provides services



from soil survey, engineering design to agronomic support. It nurtures a sprawling 2300 acre Hi-Tech Agriculture Institute; a Farm Resource R&D, Demo, Training & Extension Centre. JISL also undertakes turnkey projects for agricultural and irrigation development with holistic & integrated approach. Over 1500 Agri-Irrigation Scientists, Engineers and Technicians are engaged in offering services for complete project planning and implementation e.g. Watershed Development through Wasteland Transformation, including crop agronomy, protected cultivation etc.

JISL has successfully introduced some hi-tech concepts to Indian agriculture such as 'Integrated System Approach', One-Stop-Shop for Farmers, and 'Infrastructure Status to Micro Irrigation & Farm as Industry.'

PVC/PE PIPES

JISL is also the largest manufacturer of plastic pipes in India covering a wide range of pipes and fittings and annually processes over 500,000+ MT of various polymers. We extrude pipe/sheet and inject the molds of PVC, PE, PP & CPVC along with other engineering polymers like Polycarbonate, Polyamide, PBT, ABS etc. We are a Total Solution Provider for various plastic piping systems that are used in conveyance of fluids, semisolids, gases and cable.

24/7 DRINKING WATER SOLUTIONS

Drinking water is a basic need of the society and also an essential commodity. The drinking water supply system in place can ensure delivery of safe water, regularly to each consumer with better quality of drinking water for good public health. The demand for clean water is a big challenge to municipalities worldwide. As cities continue to expand, the demand for cost-effective water supply and distribution, therefore becomes important. The network of leak-proof MDPE / HDPE pipes are used to supply the water to different supply zones/areas. The water supply connections (also called House Service Connections - HSC) to each consumer are classified as non-domestic (commercial, cultural centres, industrial or institutional, Government establishments), stand posts and domestic or residential connections.

JISL offers total solution for drinking water supply on turnkey basis, which includes consumer survey, site topographic survey, designing of water supply pipelines, manufacturing and testing of PE pipes & fittings, supply & installation of PE piping network at site, hydro testing and commissioning, operation and maintenance and training in the most economical way supported by a large pool of engineers. Jain has successfully implemented the concept of 24x7 water supply schemes in a number of cities across India.

PLUMBING SYSTEM

Plumbing System in its totality is the system of pipes and fittings for the distribution of potable water at adequate pressure which can be used for drinking purposes and the disposal of wastewater from all the fixtures. JISL Plumbing System brings



you an entire range of comprehensive building products including CPVC, uPVC ASTM, uPVC ISI, SWR and UDS piping system making it an ideal solution for all residential and commercial plumbing piping. Jain Plumbing System offers pipes and fittings which are easy to install, economical, safe for drinking, corrosion resistant and with lower bacterial growth and are manufactured in line with major national and international standards and parameters. The main intent and effort is to provide stringent quality & sustainable plumbing piping solutions for a long and healthy life.

The Piping Division includes PE, PVC Pipes and Fittings catering to the urban and rural infrastructure needs of the country apart from irrigation needs of the farmers. Jain PE Pipes & fittings are available as per the major Indian & International Standard Specification.

Jains also offer complete services for Polyethylene (PE) & PVC Piping Systems on Turn-Key basis which includes Site Survey, Design, Selection of Material, Supply, Installation, Testing, Commissioning and Training in most economical way supported by a large pool of experienced Scientists, Technicians & Engineers.

The plumbing products are for the building and construction industry, residential and commercial complexes, townships, high rise buildings, hospitals, industrial plumbing, industrial projects water supply system, swimming pools, rising and distribution mains for civic amenities, potable water supply systems for urban and rural population, underground drainage/sewerage systems for municipal and government projects, industrial effluent conveyance for manufacturing and process facilities, storm water drainage system for infrastructure sector.

'WATER CONNECT'-BILLING & MONITORING SYSTEM

Water Connect is an integrated system developed by Jain to monitor the entire water supply system remotely. The system also prepares monthly bills for each consumer based on actual consumption of water by the consumer. Municipal corporations save on the Non-Revenue-Water (NRW) or water losses using this 'WaterConnect' integrated System.

'WaterConnect' is an IOT based software and analytical platform designed to operate water supply projects. It helps to control and monitor right from the SCADA system in pump houses to distribution system valves in the city area through the internet. It can take inputs from different types of sensors like pressure, flow, level, pH etc. Project administrators can make multiple water distribution schedules through 'WaterConnect'. These schedules are then transferred to 'WaterConnect' Master, which is the brain of the system. It transfers these schedules to 'WaterConnect' PRO remote terminal units. 'WaterConnect' PRO has the ability to store the schedule and operate accordingly. Even if the communication breaks, 'WaterConnect' PRO operates as a standalone controller with the schedules stored in it.

WASTE WATER SYSTEM- SEWERAGE /DRAINAGE

PE being an inert material, it is unaffected by most chemicals, be it acidic or alkaline. The advantage of using a single raw material without any additives for manufacturing the pipes with monolithic joints made with fusion of the pipe materials has enabled a vacuum sewerage system. This has reduced the burial depth as well as the diameter of the pipes used as compared to conventional gravity sewerage systems leading to reduction of system cost enormously along with saving of time and CO2 emissions. The installation or rehabilitation of a sewer system mains can be significantly faster and easier with PE pipes. This is primarily due to PE pipe's lighter weight, ease of handling, and its suitability for trenchless technologies like pipe bursting or horizontal directional drilling. Because of its flexibility, PE pipe can be shaped during its installation to curve around obstructions and angles without difficulty. Its light weight allows for pulling long assembled lengths of the pipe through long difficult tunnels under roads and structures with little effort at greatly reduced costs. These benefits and many others make it an ideal choice for sewage piping solutions. JAIN's PVC Underground Drainage & Sewerage Pipes are ideal to carry all the soil and waste water through underground channels from multi storeyed buildings, hotels, hospitals, shopping malls, institutions, complexes etc. to sewers or to the point of disposal. Jain Plumbing UDS system is available in size range from 110 mm to 630 mm with stiffness classes of SN-2 KN/m2, SN-4 KN/m2, SN-8 KN/m2 and conforms to IS 15328. Jain Plumbing high quality Plumbing pipes and fittings are manufactured in line with major national & international standards and parameters. The range

encompasses both Solvent Welded and Threaded piping pertaining to various applications from residential and commercial to industrial plumbing.



OFFSHORE PIPING SYSTEM

JISL PE piping systems have been increasingly used for marine offshore applications such as in seawater desalination plant's intake & outfall pipelines, effluent disposal outfalls pipelines. PE pipes are best suited & proven for seawater intake and seawater outfall pipelines because of its flexibility, stronger joints and inertness to high salt content.

Other beneficial features like light weight, floatation properties, pipe to pipe joints stronger than the pipe itself, flexibility of the pipe, convenient short cold bending radius, adequate ring stiffness, strain-ability due to PE's high strain capacity, adjustment capacity to various external forces generated by wave and current action of the sea, ocean, river or lake water bodies under which the pipes are to be installed and also the high strain capacity which allows the PE pipes to safely shift or bend to accommodate itself to altered bedding which is the result of under-scouring that may sometime occur due to strong wave and current action under water.

The integral joints with high tensile strength have also made it possible to use the pipes for installation under water bodies by using the Horizontal Directional Drilling (HDD) method. Jain PE pipes of larger diameters ranging from 800 mm to 2500 mm have been used in India & abroad.



SOLAR PHOTOVOLTAIC AND PUMPING SYSTEM

JISL is one of the top solar companies which has vertically integrated manufacturing facilities and provides end to end solar solutions for all solar products/ systems. Jain is the largest solar company in distributed and centralised solar power generation serving more than 100,000+ of solar customers across India. The current product range includes Solar PV modules, solar pumps, solar off grid power plants,

solar rooftop grid connected plants, solar water heating systems, LED based home lighting, LED based street lighting, LED lanterns, and turnkey projects based on all the above products.

INDUSTRIAL USE

Metal piping materials face many problems like eventual corrosion, which can then threaten the integrity of drinking water, leakage losses. Sometimes expensive chemicals / gases get wasted due to leakage. Most cities face burst water mains, sometimes quite regularly, and this is due to corrosion of water pipes and improper design & installation. PVC / PE piping has proven to have no pipe break rate compared to cast iron, ductile iron, concrete, steel, and asbestos cement. PVC/PE pipes also show excellent resistance to many chemical reagents and disinfectant chemicals. This makes them a top choice for most water projects as they can carry the most strong acids, alkalis, aqueous solutions, fluorides, plating solutions, brine, mineral oils, and much more.



INTEGRATED SOLUTION

JISL is promoting a major initiative to convert the existing canal command areas into "Jain Integrated Irrigation Solutions (JIIS)", wherein the irrigation efficiencies can be increased up to 75% which is double as compared to irrigation efficiency of conventional systems. Under the umbrella of Jain Integrated Irrigation Solutions (JIIS), "Resource to Root"™ is a concept which enables us to achieve 'Water Use Efficiency' up to 95% and results in increased water factor productivity multiple times.

TISSUE CULTURE UNIT

The Tissue Culture Division has the capacity to produce 100 million banana plantlets, 8 million Pomegranate and 1 million Strawberry at full capacity. It has established primary and secondary hardening facilities at Tissue Culture Park, Jalgaon as well as at Kurnool, Andhra Pradesh and Udumalpet, Tamil Nadu.



FRUIT PROCESSING AND DEHYDRATION UNITS

As a part of value addition, JISL has embarked upon processing of tropical fruits such as Mango, Banana, Papaya, Guava, Tomato, and Pomegranates into puree, pulp, concentrates as well as Individual Quick Frozen (IQF). Apart from fruit processing, Dehydration units produce dehydrated products of Onions & Other Vegetables. Our spice processing plant, the biggest in the country, is involved in the production of spices such as Cumin, Chilli, Turmeric, Coriander, Black pepper, Garlic and Ginger powders. These plants are certified for ISO 14001, ISO 45001, ISO 50001, BRC, Halal, Kosher and SGF.

ABOUT THE AUTHOR



Dilip Yewalekar
Senior Vice President

Email: yewalekar.dilip@jains.com, dhy2006@gmail.com,
Mobile: +919403080162,
M.Tech- Civil- Structural Engg, PG Diploma in Piping Engg,
AMIE,UK,ASAE, USA,
Google Scholar, Research Gate Scholar
Member of ICID.
Member of WRD and BIS.
Member of NCERT.
Fellowship World Bank and Mashav, Israel
Faculty: Govt College of Engg, Jalgaon.
Faculty: Micro Irrigation Course of ICID & CWC, Govt of India.
Reviewer1 –ICID Conference, Beijing, China 2023
Reviewer2 –ICID Conference, Kaula Lumpur, Malaysia 2024-25

Awards:

- The EEF Global Water Leadership Award – Global Water foundations.
- Strategic Leader in Micro Irrigation – ABSA Award.
- Professional Excellence Individual Award – Aqua foundations.
- Great Manager 250 Award, Economics Times, honoured by Hon Kumar Mangalam, Birla Group.

Best Innovative Article in Sabujeema International Magazine
Overall all experience of 36+ years in Water Management – Irrigation, Agriculture, Civil Engineering, Planning, Designing, Execution, Management & marketing in India and Abroad.
100+ papers/publications at national/international conferences/magazines/books.

**The only bad thing about good luck is..
you never know when it will favor you.**



**That's why smart
professionals
make informed
decisions.**

EverythingAboutWater
The Power of Knowledge
Over 23 years of expertise



As a professional when you develop specifications for next generation water treatment equipments or maintain and upgrade your current plants an systems, EverythingAboutWater helps you know how you can integrate best of water treatment products and services into your planning process. What's more - our real life case studies tell you about their long term feasibility in advance. Be ready for the future...

Visit here to access 'Free E-Magazine' at www.eawater.com/eMagazine

INNOVATIVE DIGITAL WATER SOLUTIONS FOR EFFECTIVE WATER MANAGEMENT IN SMARTER CITIES

Raveendra

Area sales Director, Water Utility Indo-region

Cities worldwide are grappling with unforeseen water management challenges due to rapid urbanization and climate change. The need for innovative water management solutions has never been more critical, as urban populations surge and environmental pressures intensify. At Grundfos, we believe that integrating cutting-edge technologies into conventional water infrastructures is the key to achieving efficient and sustainable urban water management for the future.

Urban water systems face numerous challenges, with much of the infrastructure in cities worldwide suffering from leaks and inefficiencies. According to the World Bank, up to 60 percent of water produced in some cities is lost due to these issues. Additionally, growing populations place increasing demands on already strained systems. This is a critical concern, as the World Health Organization reports that 2 billion people still lack access to safely managed drinking water services.

These issues are highly pivotal for developing countries who are undergoing rapid urbanization, like India. India currently accounts for the world's second-most populous urban population. From the extant strength of 355 million, India is predicted to add another 416 million to already populous cities by 2050, reaching an urban share of 50% of the population. This unprecedented growth in urbanization coupled with climate change and pollution has indeed created an urgent need for some new effective ways of managing water resources.

For this purpose, smart cities are applying modern digital solutions relying on data, connectivity, and advanced analytics. Among those pioneering technologies of a digital revolution is smart water metering. Smart meters can provide real-time information about water usage, which can be used for

tracing leakages at an early stage, faster repairs, and less water wastage. The International Water Association recently conducted a study that, after its findings, confirmed the fact that smart metering may reduce losses by up to 30% and operational costs by 15%.

These obstacles are particularly critical for rapidly urbanizing developing countries like India. Currently, India, has the world's second-largest urban population. From its current 355 million urban residents, India is expected to add another 416 million by 2050, reaching an urban population share of 50%. This unprecedented urban growth, combined with climate change and pollution, has created an urgent need for innovative water resource management solutions.

To address this, smart cities are leveraging modern digital solutions that rely on data, connectivity, and advanced analytics. One of the pioneering technologies in this digital revolution is smart water metering. Smart meters provide real-time information about water usage, enabling early detection of leaks, quicker repairs, and reduced water wastage. A study by the International Water Association found that smart metering can reduce water losses by up to 30% and operational costs by 15%.

An example of smart water management is digital twinning. The virtual replication of the water systems helps utilities use scenario planning and optimize performance with sharper and better-informed decisions. The Singapore city led the way in using digital twins in water management. This entails an entire model of its water system, thus helping in better planning and the efficiency of operations.

At Grundfos, we have been testing those digital solutions in real life.

Our intelligent water distribution systems will help cities save up to 40 percent of non-revenue water and prolong the life of their infrastructure. In Denmark, for example, our pressure management solutions for utility company Aarhus Vand reduced water loss by seven percentage points and saved both water and energy.

Our smart pumping stations, with combined Internet of Things and cloud computing technologies, adjust in real-time to various demand scenarios with up to 50 percent energy efficiency. This reduces their running cost while increasing the carbon footprint reduction of water distribution by quite some margin. In one such smart pumping solutions project developed with Thames Water in the UK, the solution reduced usage of energy by 56 percent at the biggest pumping station.

Further, with repetitive increases in urban floods in countries such as India, it becomes mandatory to rely only on non-structural measures of flood management in urban areas as the structural measures are no longer serving the purpose. All those smart pumping systems, sensors, data analytics, and a variety of IoT technologies are now designed to improve overall flood management in urban areas. It will be able to use real-time analytics along with predictive models to deal with the development of floods and predict them, alert authorities, and be able to automate the redirection of water.

The benefits associated with these digital water solutions are very diverse. In addition to the more tangible benefits related to operation efficiency and water savings, this transformation fosters the resilience of urban water systems to the impacts of climate change. The technologies also endow management with an increased capacity for adaptive

management options that allow them to respond much more quickly to changing environmental circumstances. It causes better quality of service and transparency, which increases customer satisfaction and trust in water utilities.

Digital technologies in water management hold promising prospects. We anticipate greater integration of AI and machine learning, enabling the development of more complex predictive models and the optimization of autonomous systems. Secure data management systems, inspired by blockchain technology, will enhance the reliability and security of water data. Consequently, we can expect increased

citizen engagement in fostering a culture of water conservation and awareness through mobile applications and real-time information sharing.

The actual implementation of these digital water solutions will be based on cooperation between the public and private sectors. INVIT/MUDRA, AMRUT, Jal Jeevan Mission, and Smart Cities Mission are encouraging public-private partnerships for water management in India. More additional finance sources will be available, and the delivery service effectiveness will improve besides developing cultural aspects regarding the delivery of the service; therefore, adaptation becomes even more feasible and effective.

In other words, digital water innovation solutions represent more than a new game of technology; they are critical ingredients for building sustainable and resilient smart cities. Dedicated to developing and implementing the technologies that ensure effective water management for the populations of urbanized cities all over the world, Grundfos provides leadership in ensuring that cities embracing digital transformation overcome their water challenges and build a more sustainable future for citizens. Securing our water supply for the future will call for the smart application of digital technologies across our urban centers, and we are proud to be among the most useful for this crucial task.

ABOUT THE AUTHOR



Raveendra Bhat, Area Sales Director for Water Utility INDO (India, Bangladesh, Nepal, Bhutan, Maldives) at Grundfos, has over 30 years of extensive experience in business management, development, project execution, sales, and marketing within the water sector.

His expertise spans solution selling, direct sales, and channel management across diverse industry segments. Raveendra's career includes key positions at Bayer ABS Limited, GE, Essar Group, and Xylem Water Solutions, with significant contributions to regional corporate CSR activities across India, Asia, and Africa.

Holding a post-graduate degree from CIPET, Chennai, and an Executive MBA from IIM Calcutta, Raveendra is also a flute enthusiast, an astrology aficionado, and an avid cook.

Raveendra Bhat
Area Sales Director, Water Utility INDO- Region



Customized Webinar With B2B Meetings

LET'S CONNECT DIGITALLY VIA WEBINAR

 **REGISTER NOW**



More Information
+91 85889 11033



For case study submission, write us at
enquiry@eawater.com



Visit Now:
www.eawater.com

MOTT MACDONALD BENTLEY STANDARDIZES PHOSPHOROUS REMOVAL SCHEMES, DELIVERING INFRASTRUCTURE AND INTELLIGENCE BENEFITS TO THE U.K. WATER INDUSTRY

Paul Rotter

Product Marketing Manager, Bentley

ProjectWise Component Center Helps Facilitate Repeatable Workflows to Save More Than GBP 3.7 Million Supporting Environmental Sustainability.

MEETING STRINGENT REQUIREMENTS FOR PHOSPHOROUS REMOVAL

The United Kingdom water industry's Asset Management Plan 7 (AMP 7) includes a heightened priority for improving water quality schemes. In particular, it focused on reducing the amount of phosphorous released into watercourses, which are natural or artificial channels where water flows. Originating from a range of sources, including wastewater discharge and water main leakages, high levels of phosphorous yields extensive algae growth, posing a significant threat to watercourse habitats and environmental sustainability. To meet the U.K.'s new stringent requirements for the removal of phosphorous at wastewater treatment plants, many water companies needed to upgrade their existing assets. Mott MacDonald Bentley, a joint venture between JN Bentley and Mott MacDonald, identified an opportunity to initiate a waste treatment phosphorus removal program for their U.K. water company clients.

Known as P schemes, the phosphorus removal program consisted of more than 100 projects across

their seven client frameworks with a total design and build budget of GBP 300 million. "This large program created an opportunity to increase efficiency with a standardized approach across projects, reusing designs and data across different locations and clients," said Anmol Khurana, product lead for Moata Intelligent Content at Mott MacDonald Bentley. The successful completion of the P schemes will reduce the amount of phosphorous that ends up in the waterways, significantly improving water quality, the environment, and sustainability. It will protect habitats and ecosystems while increasing the amount of available drinking water.



Moata Intelligent Content, powered by ProjectWise, provided an intelligent digital platform to facilitate repeatability, collaboration, and standardization. Image courtesy of Mott MacDonald Bentley.

REPEATABILITY, STANDARDIZATION, AND COLLABORATION

For such a large program like the P schemes, having a standardized delivery approach and being able to make decisions at a program level is far more efficient than the traditional delivery methods of individual designers creating components in silos. "The vision was to make the design and delivery process for all the projects as efficient as possible by developing standard solutions," said Khurana. However, the sheer scale of the project presented data sharing and coordination challenges, compounded by the unique needs of each client, making standardization difficult. At the heart of Mott MacDonald Bentley's approach was breaking down the design and delivery process and implement repeatable solutions, data standards, and collaboration in design, procurement, and construction.

"Traditionally, designers needed to recreate components and data spreadsheets for each project," said Khurana. Recognizing that this method was neither cost, resource, nor time efficient, Mott MacDonald Bentley sought to identify reusable components across their client frameworks and create standard parametric models in a connected digital environment to foster cross-framework collaboration. To achieve this goal and deliver more

value with fewer resources, they realized that they needed an integrated digital technology solution capable of intelligent modeling to develop a component library, standardizing design and delivery for all removal schemes across multiple client frameworks.

AN INTEGRATED INTELLIGENT TECHNOLOGY SOLUTION

Mott MacDonald Bentley identified their industry-leading BIM library, Moata Intelligent Content, powered by Bentley's ProjectWise, as the digital solution to collect standard components from their supply chain and produce a standardized parametric model that was made available across their client framework. "ProjectWise provided agnostic file hosting, an intuitive search feature, and rapid access functionality that powered Moata Intelligent Content and allowed users to access data quickly and produce a standardized parametric model that could be linked with standard or templated documentation available to all client frameworks," said Khurana. The integrated intelligent technology approach promoted repeatability, standardization, and collaboration, providing a strategic solution to enable consistent, quality, and efficient design.

Through easy-to-use access to a vast managed library of specially created, standardized, and compliant parametric digital assets, Moata Intelligent Content allowed users to incorporate data-rich components into their design models. Combined with Bentley's collaborative digital technology, the platform facilitated reuse of content from a managed central repository with parametric functionality that allowed for component dimensions and types to be adjusted to suit each client's requirements, eliminating the need for designers to recreate components and data spreadsheets. "The content library currently contains 41 separate components and six assemblies, which are fully parametric," said Khurana. The digital library and innovative use of ProjectWise standardized P schemes for 100 projects across Mott MacDonald Bentley's seven water clients.



The platform's parametric functionality standardized design, reducing time spent on repeatable tasks to save 13,600 hours in design time. Image courtesy of Mott MacDonald Bentley.

DELIVERING MORE WITH LESS

The use of Moata Intelligent Content on Bentley's ProjectWise helped significantly improve efficiencies on the program. "Deploying ProjectWise for our removal projects has proven to be instrumental in achieving substantial gains in both design efficiency and waste reduction across our entire project portfolio," said Matthew Dinsdale, DfMA digital lead at Mott MacDonald Bentley. The establishment of a unified central repository effectively mitigated the complexities arising from outdated component designs, as well as provided an environment conducive to improved collaboration. By leveraging rapid access to design resources and assemblies stored in the central component library, Mott MacDonald Bentley implemented more efficient design and delivery processes, accelerating the progress of P schemes, resulting in faster project completion, increased efficiency, and lower associated costs.

Working in a collaborative digital platform with parametric functionality streamlined workflows and facilitated repeatable design and construction, saving 13,600 hours and more than GBP 3.7 million in total costs, including an impressive GBP 632,800 savings through the reuse of standardized design components alone. "These savings mean that Mott MacDonald Bentley can deliver more P schemes with less resource, benefiting not only Mott MacDonald Bentley, but also its clients, the environment, and local communities, as the health of more U.K. watercourses is improved faster," said Khurana. With the whole water sector facing affordability issues and a lack of resources, Mott MacDonald Bentley not only demonstrated cost savings and a return on investment, but they also helped to reduce the industry's resource capability gap.



Mott MacDonald Bentley's integrated digital solution improved program efficiencies, saving GBP 1.07 million. Image courtesy of Mott MacDonald Bentley.

ROI

- The platform's parametric functionality standardized design, reducing time spent on repeatable tasks to save 13,600 hours in design time.
- Mott MacDonald Bentley's integrated digital solution improved program efficiencies, saving GBP 1.07 million.

CALLOUT QUOTE:

"Bentley technology was used to meet the unique engineering challenges of this program by providing a platform for a component library that was used to standardize design and delivery across more than 100 projects." – Anmol Khurana, Product Lead for Moata Intelligent Content, Mott MacDonald Bentley

PROJECT SUMMARY

Organization:

Mott MacDonald Bentley Solution: Enterprise Engineering Location: United Kingdom

Project Objectives:

- To upgrade water infrastructure assets to meet new U.K. guidelines for reducing phosphorous.
- To standardize phosphorous removal schemes across seven water companies.

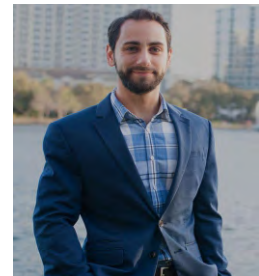
PROJECT PLAYBOOK:

Project Wise

Fast Facts:

- Mott MacDonald Bentley's waste treatment P schemes consist of more than 100 projects across seven client frameworks.
- The large-scale program created an opportunity for Mott MacDonald Bentley to standardize workflows.
- Moata Intelligent Content, powered by ProjectWise, provided an intelligent digital platform to facilitate repeatability, collaboration, and standardization.

ABOUT THE AUTHOR



Paul Rotter

Product Marketing Manager, Bentley

Paul Rotter joined Bentley in 2021 to serve as product marketing manager. He is responsible for driving adoption of Bentley's project delivery products. Rotter holds a bachelor's degree in English from the University of Central Florida.

EIL TACKLES DESIGN FOR THE LARGEST UNDERGROUND ENERGY STORAGE FACILITY IN INDIA

Seequent

To better understand the underground the EIL team used Seequent's Leapfrog Works to create highly visual 3D subsurface models, GeoStudio for insights into seepage analysis and, Seequent Central to enable easy collaboration and communication across stakeholders.

A COMPLEX UNDERGROUND STORAGE FACILITY

Constructed deep underground, rock caverns are considered a cost-effective and safe way to store hydrocarbons. Compared to aboveground storage, they require less land, minimise evaporation loss, have a longer lifespan and are more environmentally friendly.

Facilitating the creation of underground rock cavern storage also plays a vital role in reinforcing India's energy security and complying with the IEA's 90-day reserve requirement for strategic and commercial LPG supply.

But - like any major underground infrastructure project - it has proved very geotechnically complex for the engineers and designers involved.

"We are working on a challenging LPG storage project on India's West Coast that involves constructing an underground unlined storage facility beneath an existing import facility and dispatch station," says Saikat Pal, Senior Geologist and Deputy General Manager at Engineers India Limited (EIL).



Headquartered in New Delhi, EIL is an engineering and technology consultancy that provides services for major hydrocarbon, mining, infrastructure and power projects. Pal coordinates multiple project stakeholders including rock engineers, geologists, hydrogeologists and backup consultants.

"During our underground site investigations, our top priority and number one challenge has been to avoid disruptions and ensure the safety of the operational facility above. And, from a subsurface perspective, we've had to face many complex geological challenges, such as igneous intrusions and fractured, highly permeable rock," says Pal.

FAST FACTS:

EIL delivered detailed design for the largest LPG storage facility in India, 100 metres underground. Excavated rock caverns are usually 20 metres wide, 30 metres high, and 300-1000 metres long. Leapfrog Works highly visual 3D subsurface models enabled easy, accurate geological analysis.

CRUCIAL ROCK FRACTURE INSIGHT TO OPTIMISE FUEL STORAGE

Typically, an excavated rock cavern is 20 metres wide, 30 metres high, from 300 to 1000 metres long (depending on storage capacity) and accessed via vertical shafts or inclined drifts. The geology is often intricate, requiring extensive subsurface investigation to minimise surprises and de-risk construction.

"Our goal was to determine the geological, hydrogeological and geotechnical site conditions to ensure the project's design, safety and cost-effectiveness," says Pal.

Around 100 metres below the surface and beneath the water table, the caverns can experience in-situ bedrock deformation, often resulting in fractures that enable high fluid flow. Understanding these fractures is crucial for ensuring the stability of the rock cavern and optimising fuel storage (so that hydrocarbons are not lost along these highly permeable zones).

"Using Seequent's Leapfrog Works 3D geological modelling to accurately predict and understand the geology and structure of the bedrock, has been a game-changer," says Pal.

Leapfrog Works integrates and visualises complex subsurface data to enable informed decision-making across civil engineering and environmental projects.

"Prior to using Leapfrog Works, we had to build our 3D models from 2D sections which was time-consuming and frustrating. Now, we simply integrate all borehole and geotechnical data to create an implicit 3D model and can take slices in any direction to easily and accurately analyse the geology," says Pal.

CONNECTED DIGITAL WORKFLOWS TO UNDERSTAND THE UNDERGROUND

"What makes Leapfrog Works so powerful is that from the beginning we have been able to develop a deep understanding of the geological challenges and ground conditions to help de-risk construction. If any adverse features appear we can either avoid that zone or change the orientation of the structures," says Nishant Kumar Mishra, Manager and Geologist at EIL.

Mishra works with the guidance of Pal and Seequent experts to 3D model the geological and hydrogeological aspects of the site's underground tunnels in Leapfrog Works.

"We have imported 130 observations into our 3D cavern design and can easily input and extrapolate out any features such as Dykes or Faults. Leapfrog Works enables us to accurately represent the geology and get an advanced understanding of the underground ahead of each phase to help de-risk our project from delays in cost and time," says Mishra.

Seequent's GeoStudio 2D SEEP/W groundwater flow and pore water pressures analysis software has offered Mishra and the team valuable insights on groundwater flow into the cavern.

LPG stored underground is contained with the principle of hydraulic containment, with the cavern's depth allowing surrounding groundwater to flow through rock fissures towards it and preventing LPG from escaping.

"Using the connected workflow of Leapfrog Works with GeoStudio helped us determine the fracture flow values to enhance the safety of the storage facility. While the cloud-based team collaboration platform Seequent Central enabled us to quickly and easily share and communicate any updates and risks with our stakeholders," says Mishra.

SETTING THE DESIGN STANDARD ACROSS MAJOR CIVIL PROJECT

Introducing Seequent's innovative subsurface technology across major civil infrastructure projects is helping the EIL team reinforce the Government of India's geological regulations and meet international standards. EIL follows the Bureau of Indian Standards (BIS) the Oil Industry Safety Directorate (OISD) and the International Organization for Standardization (ISO).

"We work on large, complex projects in geographically and geologically challenging locations that require detailed subsurface design. Leapfrog Work's dynamic, 3D geological modelling is definitely helping us achieve the level of design detail required," says Pal.

"We're impressed with Seequent's high level of technical support and interactive training sessions. Creating these amazing 3D models, guided by expert engineers and hydrogeologists with real-world experience on projects such as ours, is incredibly helpful. The time and effort the Seequent team put in to help build our skills and knowledge has made all the difference," says Pal.

Seequent software is being used on other major civil projects across India, including The Pinnapuram Integrated Renewable Energy Project (IREP) - a combined solar, wind and pumped storage hydroelectric power project being developed in Andhra Pradesh.



Figure 1 Google Earth image of project area

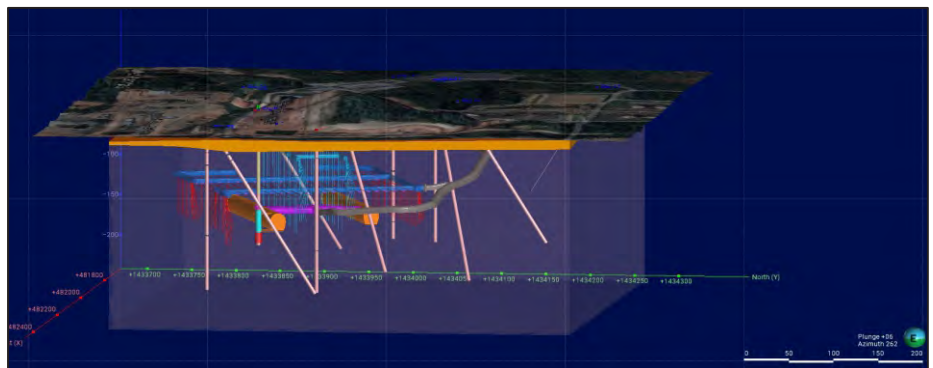


Figure 2 Underground cavern below surface facility (Image: EIL)

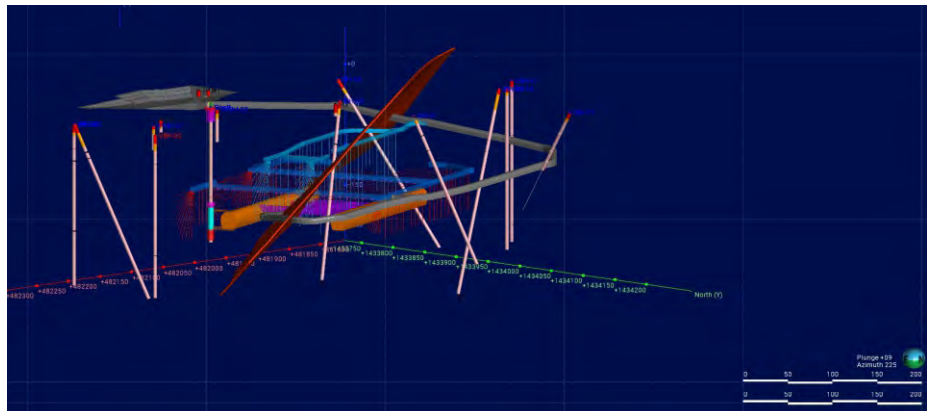


Figure 3 Projection of features from investigation holes (Image: EIL)

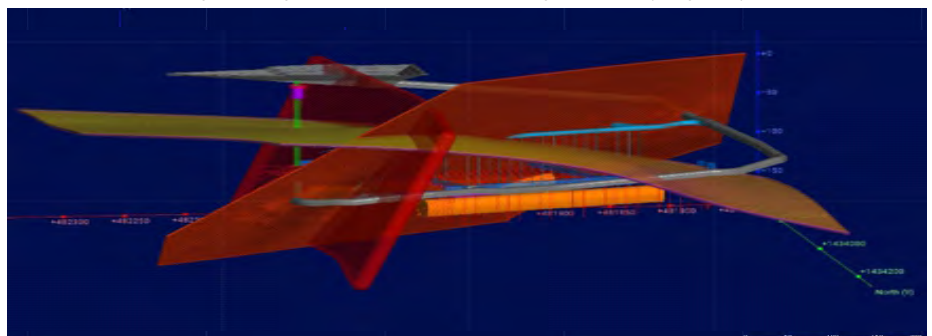


Figure 4 Modelling of adverse geological features (image: EIL)

URGENCY MEETS INNOVATION: TECH'S ROLE IN RESOLVING WATER CRISIS

Kanishka Chatterjee
Director & Head, TheNudge Institute

As you leaf through today's newspaper, the resounding message is crystal clear: we're facing a dire water crisis, and the urgency to address it is palpable as time ticks away.

India grew from merely 51 million tons (Mt) of food grain production in 1950/51 to over 314 Mt in 2022- a sixfold increase in production. What led to this remarkable outcome was the shift to science-led agricultural development, planner's vigour and the dedicated effort of millions of farmers. This transformed India from an acutely food-scarce and food shortage nation to a food surplus and food-exporting country.

However, these accomplishments came at a price- trading in water security, a resource even more essential for the survival of 1.3 billion people.

India has the highest demand for freshwater usage globally and extracts more groundwater each year than the US and China combined. 91% of this freshwater is used in the agricultural sector now, with groundwater contributing 62% of all irrigation water. Mismanagement, over-extraction, and inefficient irrigation practices have led to water scarcity in many regions. Moreover, climate change, growing population, and dependence on rain for replenishing these water reserves are not helping the case.

The issue operates in a dual manner: Inefficient agricultural practices contribute to water wastage, exacerbating water scarcity. Consequently, this scarcity threatens the future of agriculture, ultimately jeopardizing the livelihoods of 58% of the nation's population that is currently dependent on it. This underscores the need for responsible water management.

But before this, we need to understand the science of agriculture

Agriculture centers on the cultivation of soil, farming practices, and the nurturing of crops through

irrigation. 'Irrigation' means supplying water to land to make it ready for agriculture.

Few crops require less amount of water for irrigation and few crops like rice, wheat, cotton, etc. require huge amounts of water for growth and are thus considered water-intensive crops.

Rice, wheat, cotton, and sugarcane represent 90 percent of India's domestic production and take up more than half of India's cultivable land. One of the key reasons for their higher production could be the most effective Minimum Support Prices (MSPs) support for these crops given by the government, leading to a disproportionate incentive structure favoring water-intensive crops.

An in-depth analysis of crop distribution across states highlights how suboptimal planting patterns exacerbate water stress. In Punjab, 117 out of a total 153 blocks are observed to have over-exploited groundwater- still the main cropping pattern is rice & wheat. Despite the significant water demand and shortage, Maharashtra contributes 22 percent of the nation's total sugarcane output.

A classic example is the Marathwada district in Maharashtra, where water scarcity has intensified due to three consecutive poor monsoons. The farming patterns in the semi-arid region have changed in the past few decades. Many farmers in the area have shifted from drought-resistant crops such as jowar (sorghum) and chana (chickpea) to water-intensive crops like sugarcane, lured by government incentives. Marathwada gets about 844 mm of average rain annually, whereas sugarcane ideally needs 2,100-2,500 mm. Traditional crops like moong and maize require 3.5-7 million liters of water per hectare, while sugarcane demands a significantly higher amount at 25 million liters per hectare. But sugarcane farming continues despite the drought and the area under sugarcane cultivation has gone up from 167,000 hectares in 1970-71 to 219,400 ha in 2014-15.

Why water is key



Thus, growing a water-intensive crop in already water-stressed areas is a recipe for water famine.

THERE ARE TWO PERSPECTIVES TO CONSIDER WHEN EXAMINING THE SOLUTION:

- Government policy and interventions need to shift to reset the revenue balance in favor of other less water-intensive crops. Currently, the government asks farmers to shift to less water-consuming crops, but it does little to support such a change. Fluctuating prices for vegetables, oilseeds, and pulses diminish the motivation for farmers to cultivate these crops.
- Technology & innovation to reduce water usage and wastage in water-intensive crops; and the ecosystem that is required to enable such innovation.

The nation has recognized that producing more from less is the key option to ensure sustainable development. Emerging technologies offer the ability to monitor, adjust, and promote more efficient use of water resources in agriculture. Further, these technologies should consider affordability by small-holder farmers since they make up 86% of India's farming households.

A perfect example of this is the Drip Pool Programme. This programme which was started in Gujarat, enables cotton farmers in India to use micro irrigation technology (drip irrigation) via community funding to provide interest-free loans to such farmers for adopting the technology. Programme farmers have

reported using just 1,191 liters of water per kilogram of cotton, compared to the 5,923 liters consumed by non-programme farmers. They have also reported benefits such as uniformity in production, better yield of seed cotton and increased fertilizer cost efficiency as well as reduced weeding and lower labour costs.

HOWEVER, SPARKING NEW INNOVATIONS REQUIRES A VILLAGE

Just as water is required for nurturing soil and seeds, so too are the enablers and ecosystem vital for propelling the technological revolution. There are four major facilitators of technology seeding:

1. **Landscape of Research & Development-** Research and development within an industry, and learning by doing, can lead to technological change. The maturity of R&D centers and their collaborative synergy play crucial roles in this process.
2. **Spillover from other industries-** Drawing knowledge and expertise from related/ similar industries, along with the ability to integrate platforms from diverse use cases nationwide, fosters a culture of hypothesis testing and prioritization for commercial viability.

3. **Information Technology Infrastructure-** The effectiveness of existing technology infrastructure in swiftly and efficiently transferring data and decisions has accelerated the pace of technological shifts significantly.

14. **Globalization-** The increasing interconnectedness of the global economy and access to markets beyond local boundaries have transformed technology into a lever for scalability, thereby fostering innovation on a large scale.

Israel serves as an exemplary case of collaboration, transitioning from predominantly arid land to a global agricultural powerhouse. The key to this success lies at the combined role of government, market-orientation and an innovative system focused on problem-solving. Its robust innovation ecosystem addresses challenges across the value chain for farmers and private stakeholders. A dedicated government R&D agency collaborates closely with extension workers, farmers, and the private sector, emphasizing the identification of real problems, tailored solution design, and adaptive capabilities through local R&D centers. Substantial investments in education and research have propelled Israel into a

prominent global R&D hub, marking a significant leap in scientific innovation.

More emphasis on these enablers and ecosystem is a pathway to have more innovation and a nudge to more social entrepreneurs to come up with innovative ideas and technology. A few solutions that can be looked at going forward are:

- **Advisory & Information Services:** solutions that incorporate on-site data, precision agtech, and external information systems to improve decision-making
- **Irrigation as a Service:** a model that provides access to irrigation to those who do not own irrigation equipment.
- **Irrigation Mechanisation/ Automation:** solutions that provide machineries and automation technologies for irrigation.
- **Agriculture Biotech:** solutions that offer biotech/materials such as inputs, alternative ingredients, etc. to improve productivity and efficiency.

CONCLUSION

The water challenges currently confronting India are daunting, yet not insurmountable. There is an urgent need for sustainable and cost-effective technological innovations which addresses the water crisis. Equally important is the ecosystem and the enablers that nurtures and are the building blocks of such innovations. Coupled with meticulously executed government policies, this approach can undoubtedly assist India in overcoming its water challenges and also positively impact the livelihoods of the 58% of the nation's population who depend on agriculture for their sustenance.

ABOUT THE AUTHOR



Kanishka Chatterjee is the Director, The/Nudge Prize - A social innovation initiative that brings urgency & scale to stagnant livelihood issues, by inducing tech-first solutions through grand challenges.

Before joining The/Nudge Institute, he spent 16 years in consumer marketing & digital analytics as a consulting and commercial analytics leader. He has worked across Pharma, CPG & BFSI, focused on growth-hacking digital marketing strategy and driving differentiated research & social media insights practices for CXOs/enterprises. He's worked with Genpact, Clarivate, Axtia and led the marketing analytics portfolio and established new practices in digital transformations. Kanishka has a Bachelor's in Economics and PGDBM in Marketing from TAPMI, Manipal. He's also a postgraduate public policy student at the Takshashila Institute.

Kanishka Chatterjee
Director & Head, The/Nudge Institute

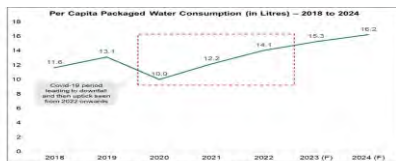
INDIAN PACKAGED WATER MARKET: RISING IN THE BACKYARD

Vigneshkumar Dhandapani
Senior Consultant, Avalon Consulting

Yugadhya Mathuria
Consultant, Avalon Consulting

As per MarketLine, India's packaged water market in 2022 was ~INR 905 Bn. The market is further estimated to grow at a CAGR of 10.3% to ~INR 1,480 Bn, till 2027. With a share of ~18% by value in 2022 in the APAC region, India is the 2nd largest and one of the fastest growing packaged water markets in the region, surpassing even China with respect to the forecasted growth rates.

The key driver for this trend is India's rapid economic growth leading to rising number of corporate offices, increasing demand for MICE events and increasing end-consumer demand driven by rising disposable incomes, see graphs below for India's per capita packaged water consumption trends and benchmarking with other countries.



Still, the share of packaged water within the overall drinking water consumed in India is very low. Assuming India's population at 1.4 Bn. and average per capita drinking water requirement at 3 litres per day, the packaged water's average share of the overall drinking water consumed would be ~1.5%.

From the outset, the future of the Indian packaged water market looks promising, but there are several challenges that persist today that may hinder its

growth. These are as listed below:

- Too Many Players in a Small Market:** Post Covid-19, there has been a general shift towards healthy consumption, with this trend seen especially amongst urban consumers. The marketing by prominent packaged water brands has been revolving around the theme of "healthy and hygienic bottled water", thereby resonating well with these consumers. However, ~200 brands operate in this space in India and ~75% of the share by volume of packaged water consumed is dominated by small players. These small players have not been able to build the same amount of brand equity as built by their prominent peers, thereby leading to a pullback on the potential sales and therefore the market's growth.
- Price Sensitive Market:** Even with positive brand equity, other challenge is the average price per litre of packaged drinking water in the range of INR. 15-20 currently. While the price figure may look small, based on the household consumption expenditure survey for 2022-23, the average per day expenditures per capita in urban and rural areas are INR. 215 and INR. 125 respectively. Further, ~60% of the urban and the rural population spends less than their respective average per day per capita expenditures. With the expenditure basket consisting of essentials such as food, medical, conveyance, electricity, etc. the spending on packaged drinking water is far-fetched for a significant portion of the Indian population, let alone for the niche ones such as the packaged "natural spring mineral" water.
- Lacking Awareness on Multiple Product Offerings:** While many of the consumers would perceive packaged drinking water positively over the tap water suited for

drinking, citing purity and health-friendliness, an average consumer might not be able to do so between packaged drinking water and packaged natural spring mineral water, even if sold by a leading player. Also, an average consumer is generally unaware of the nutritional benefits of these packaged products in terms of intake of calcium, magnesium, etc.

Today, Indian packaged water market stands at a juncture where strategic moves by its players can put it on an extremely, fast-paced growth trajectory. These are as listed below:

- Enhanced Focus on B2B Sales:** The main distribution channel in the market is through on-trade outlets, however retailers lack the brand loyalty in this market due to low switching costs for the customers. Thus, the companies can focus on strengthening their distribution network through partnerships with institutional buyers like hotels, restaurants, corporate offices, and educational institutions, which have a high and a consistent water consumption. Heavy focus on bulk supply agreements along with volume discounts can attract such customers. B2B sales also give opportunities to push niche products such as natural spring mineral water and therefore capture high margins.
- Targeted Promotion of Niche Products:** Certain Indian companies offer natural spring mineral water bottled directly from 'Himalayas' and 'Aravalis'. Highlighting the unique sourcing and superior quality of such products appeals to the premium consumer group. However, targeted promotional campaigns across the touchpoints of these customers are the key viz. premium hotels, malls, social media, etc., which thereby would lead to sales of high margin products.

- **Scale-up Through Mergers and Acquisition:** Today, multiple players exist, especially the regional ones, leading towards challenges in achieving benefits of scale through demand, especially for natural spring mineral water where logistics is a major cost. Acquisition of regional players would give big players the scale, along with making packaged water more affordable, and also relieving consumer trust deficit on quality and hygiene. Regional mergers or partnerships can also lead to similar benefits. These benefits will create a virtuous demand cycle as the different target segments would also come into the fold, such as the ones with less purchasing power.
- **"Incubate" Streams of Ideas:** Incubating new business concepts, piloting and roll-out/roll-off can be one of the diversification pathways beyond packaged water. For example, "mineral dosing" and "real time water quality monitoring" – already part of the packaged water production line - are some of the "services" that the players can plug out and evaluate for offering in the B2B format. Another huge opportunity area is replacing PET packaging of bottles with biodegradable packaging – still in its infancy. This is especially relevant as consumer participation is very critical for a successful recycle-to-reuse ecosystem, and the current levels of consumer participation in India in such initiatives are very low owing to the awareness challenge.

Favourable conditions and regulations position India's packaged water market for an exponential growth phase. "Early movers" will dominate, grow alongside as the market evolves and will shape its future as well!

REFERENCES:

- <https://www.maximizemarketresearch.com/market-report/india-bottled-water-market/20197/>
- <https://population.un.org/wpp/Graphs/DemographicProfiles/Line/356>
- Marketline report on Packaged Water Market in India, 2023.
- Norms for Potable Drinking Water norms in rural areas, Ministry of Drinking Water and Sanitation
- Survey on Household Consumption and Expenditure, 2022-23.
- <https://www.bisleri.com/bottles-for-change>.

ABOUT THE AUTHOR



Vigneshkumar Dhandapani is a Senior Consultant who specializes in Go to Market Strategy, Performance Improvement, Sourcing Strategy and Digital Transformation, with 6+ years of diverse experience across as sectors such as Manufacturing, IT and Entertainment. His previous experience includes brand synergy and product portfolio optimization for an FMEG Major, a Market Entry-to-Operations Strategy for an Indian Kids Entertainment Player and Turnaround Strategy for a major Indian Steel Player.

Vigneshkumar Dhandapani

Senior Consultant, Avalon Consulting



Yugadhya is a Strategy Consultant with 1.5+ years of experience in growth strategy, new product development and change management within the Automobile, Chemical, and Steel industries. Her professional journey includes stints at JP Morgan (IB Division), KPMG India and Canada with marquee clients. Yugadhya is a qualified Chartered Accountant and an MBA graduate from IIM Shillong.

Yugadhya Mathuria

Consultant, Avalon Consulting

EverythingAboutWater Annual BUYER'S GUIDE Directory.

India's No. 1 destination for suppliers.

With a total circulation of more than 55,000 copies across India, the annual buyer's guide directory is one place where your products need to be seen.



Follow us on:      



List your
products for
FREE

OPT for
paid listing

Choose to
advertise

WEBSITE
www.eawater.com

MONITORING POLLUTED HIGHWAY RUNOFF. A MODERN ENVIRONMENTAL SOLUTION

Lalit Mohan

Chemical Engineering, Flexim Flow India

Polluted water from motorways and highways is a significant environmental concern, contributing to the degradation of aquatic ecosystems and posing risks to human health. When vehicles travel on these roads, they deposit various pollutants such as oil, heavy metals, and tyre particles. Rainwater washes these contaminants into nearby waterways, resulting in polluted runoff. This runoff can then lead to the deterioration of water quality, harm aquatic life, and disrupt natural habitats.

CLAMP-ON ULTRASONIC FLOW MEASUREMENT – AN INNOVATIVE SOLUTION

One innovative solution to monitor and manage this runoff is clamp-on ultrasonic flow measurement technology. Unlike traditional flow measurement methods, which often require invasive installation techniques, clamp-on ultrasonic flow meters offer a non-intrusive alternative. These devices are easily attached to the exterior of pipes, allowing for accurate flow measurement without the need for pipe modifications or system shutdowns.



SUCCESSFUL IMPLEMENTATION IN BELGIUM

As a leader in this technology, Emerson's Flexim clamp-on flow measurement systems are being implemented across Belgium to monitor highway runoff. By providing precise data on the volume and flow rate of runoff water, authorities are able to assess

the extent of pollution and take timely action to mitigate its impact. The data collected helps in devising effective strategies for water treatment and pollution control, ultimately protecting the environment and public health.

BENEFITS OF CLAMP-ON ULTRASONIC FLOW MEASUREMENT



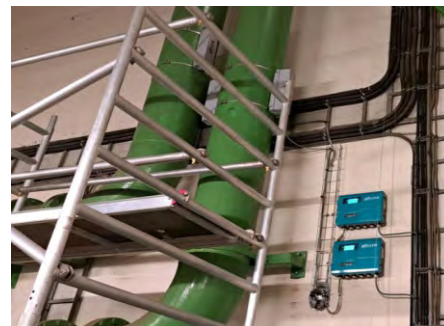
The benefits of clamp-on ultrasonic flow measurement are manifold. The installation is straightforward and cost-effective, eliminating the need for any pipe modifications. Additionally, the technology is highly accurate and reliable, capable of measuring flow rates in various pipe materials and sizes. It also provides real-time data, which is crucial for timely decision-making and environmental management.

A CALL TO ACTION

Those facing similar challenges with highway runoff, could benefit greatly from adopting the Flexim approach. Implementing clamp-on ultrasonic flow measurement systems would allow for comprehensive monitoring of this runoff, helping to identify pollution hotspots and prioritise remediation efforts. By investing in such advanced technology, environmental protection measures can be enhanced ensuring cleaner waterways and healthier ecosystems.

The integration of clamp-on ultrasonic flow measurement presents a practical and efficient solution for monitoring polluted water runoff from motorways and highways. With the successful deployment of Flexim technology in Belgium serving as a model, others have a clear path to improving their own environmental monitoring and protection initiatives.

To find out more about the real-world water and wastewater management benefits of clamp-on ultrasonic flow measurement, contact Lalit Mohan – www.emerson.com | Lalit.Mohan@Emerson.com | +91 9811449285,



ABOUT THE AUTHOR



Flexim Flow India A graduate in Chemical Engineering from Dr. S. S. Bhatnagar University Institute of Chemical Engineering, Panjab University, Chandigarh, India, Lalit Mohan has over 26 years of experience in Sales & Marketing of process instrumentation and automation in India and overseas. With a deep understanding of process, he is able to support customers in optimizing their processes with the products he promotes. Flow metering is a passion, and Lalit loves learning new technologies. This insight helps him to position the perfect solution for his customers. Lalit has worked on almost all flow technologies, and has been employed as Managing Director – India with Flexim Flow India Pvt Ltd for the past 8 years.

Lalit Mohan
Chemical Engineering, Flexim Flow India

Clean India SHOW

21 22 23 NOVEMBER 2024
Bombay Exhibition Center, Mumbai

CONCURRENT EXPOS
WASTE TECHNOLOGY INDIA EXPO **Lundrex** **AUTOCARE EXPO**

Gold Partner **CHARNOCK**
TRUST AND BEYOND

WHY VISIT THE CLEAN INDIA SHOW 2024?

- Meet 150+ exhibitors and 600+ brands
- Perfect for B2B buyers in various sectors
- See exclusive new product launches
- Attend conferences and workshops
- Network with key decision-makers

REGISTER NOW

Supported By
Ministry of Electronics and Information Technology

Scan QR code to
Pre-Visit Exhibit

EXPERIENCE ASIA'S LARGEST INTEGRATED EXPO ON cleaning and hygiene, waste management, linen care, and autocare

www.cleanindiashow.com

VIS GROUP **messe frankfurt**

REGENERATED RESINS FOR A GREENER FUTURE

Olivier Estienne

Country Director, Malaysia, Veolia Water Technologies

As populations surge and industries expand, the demand for clean water is reaching unprecedented levels. However, the conventional approach in the industry, relying on single-use ion exchange resins, carries a substantial environmental cost. In the current linear model, significant quantities of virgin resources are consumed, greenhouse gases are emitted, and landfills bear the weight of discarded resins. However, with resin regeneration, there is potential for a more sustainable way forward.

RESINS REVITALIZED – A GREENER HORIZON

Resin regeneration is the process of rejuvenating exhausted water treatment resins, extending their lifespan, and optimizing their efficiency.

By renewing depleted resins, raw material usage can be minimized and the need to mine and process vast quantities of virgin materials to produce new resins becomes obsolete. The practice of regeneration allows for the reuse of existing resins multiple times, thereby significantly reducing the environmental footprint associated with resin production.

Furthermore, the process of producing virgin resins is recognized as an energy-intensive endeavor, emitting harmful greenhouse gases into the atmosphere, as compared to the regeneration process. This approach aligns with industry standards as a sustainable practice with lower energy demand.

Additionally, replacing exhausted resins traditionally is a water-intensive process in comparison to the resin regeneration process. This proves to be a practical business approach and helps to alleviate stress on precious water resources, aligning with broader environmental conservation goals.

But while the environmental benefits are undeniable, regenerated resins are not just a stopgap solution; they represent a paradigm shift towards sustainable water treatment practices.

THE REGENERATION PROCESS

Akin to alchemy, resin regeneration involves transforming spent resins back into their prime by

treating exhausted resins with specific solutions to remove contaminants and restore their exchange capacity.

While the exact process varies depending on resin type and application, it typically entails:

1. **Backwashing:** Removing loose contaminants and preparing the resin bed.
2. **Chemical regeneration:** Applying tailored solutions to desorb captured impurities.
3. **Neutralization:** Restoring the resin's pH balance for optimal performance.
4. **Rinsing:** Removing residual chemicals and ensuring resin purity.

The frequency of regeneration depends on various factors, such as water quality and treated water volume. The ability to reuse resins with a lifespan ranging from five to ten years reduces the environmental impact compared to the conventional approach.

VEOLIA: YOUR PARTNER IN ECOLOGICAL TRANSFORMATION

The environmental advantages of utilizing regenerated resins can be compared to a ripple effect, where the impact is amplified with each regeneration cycle. These benefits underscore the significant role that regenerated resins play in promoting sustainable water treatment practices.

Veolia Water Technologies prides itself on its expertise in water treatment and its commitment to partner stakeholders to bring about ecological transformation. Through the company's Service Deionization offering, businesses can tap into advanced regeneration technologies to optimize the performance of their water treatment plants while minimizing environmental impact.

Veolia's team of specialists meticulously assesses existing treatment processes and water quality before prescribing tailored regeneration solutions to address specific purity requirements and operational needs.

This approach not only reduces environmental impact by minimizing waste and maximizing resin lifecycles but also provides clients with peace of mind and significant cost savings. With Veolia's comprehensive expertise in resin selection, system design, and ongoing maintenance, clients can be confident that their water treatment processes are in capable hands, allowing them to focus on their core business priorities.

To find out more about Veolia's Service Deionization solutions, please visit www.veoliawatertechnologies.com/asia/en/solutions/services/service-deionization or email marcom.apac@veolia.com.

ABOUT VEOLIA WATER TECHNOLOGIES

Veolia Water Technologies provides the complete range of services required to design, deliver, maintain, and upgrade water and wastewater treatment facilities and systems for industrial clients and public authorities. The company's extensive portfolio of technologies features everything from online diagnostic solutions to evaporation and crystallization, energy-producing sludge treatment, state-of-the-art desalination, laboratory-grade water and mobile water services. By optimizing both processes and monitoring, Veolia Water Technologies helps clients reduce their water footprint while generating considerable savings in energy and chemical consumption. www.veoliawatertechnologies.com





Knowledge That Keeps The Gears Going...



With a readership of over 77,000, EverythingAboutWater is India's first and only monthly magazine that addresses key issues in the water industry. Through its reach to decision-makers on water and wastewater management, the magazine helps to shape the industry policy and practice.

As an ideal reference tool for water professionals, the magazine covers case studies, technical articles, news about technological advancements, updates on the upcoming water events and much more.

Subscribe Now

Indepth Researched Content | Practical Information | Impactful Presentation



Earth Water Foundation

Mail to: Earth Water Foundation 7, Khullar Farms, Mandi Road Mehrauli,
New Delhi 110 030, India Tel: +91 8448963579 / 85889 11033

Join us at:



TRANSFORMING URBAN LANDSCAPES WITH DIGITAL WATER SOLUTIONS AND REVOLUTIONIZING SMART CITIES

Mr. Mandar Vaijanapurkar

Head of Drives Sales, Marketing & Services at Danfoss India Region

The concept of smart cities is rapidly gaining momentum as urbanization continues to increase and water demand rises. The integration of digital technologies and innovative strategies has become imperative in efficiently managing water resources in urban environments. The amalgamation of cutting-edge technologies, innovative strategies, and the concept of Smart Cities is revolutionizing the way water within these densely populated environments is perceived, managed, and utilized. As cities continue to evolve, the integration of advanced technologies and data-driven strategies becomes pivotal in safeguarding the future of urban water resources. Embracing these innovations not only addresses immediate water challenges but also fosters a paradigm shift towards a more sustainable and water-resilient future for urban landscapes worldwide.

THE EMERGENCE OF SMART CITIES AND DIGITAL WATER

Smart Cities represent the epitome of urban evolution, envisioning interconnected and intelligent systems that optimize resources, enhance efficiency, and elevate the quality of life for residents. Central to this vision is the concept of Digital Water—a paradigm shift in water management that leverages data, advanced analytics, and intelligent infrastructure to optimize the utilization and conservation of this precious resource. The increasing global urbanization and the consequent surge in water demand have elevated the significance of efficient water resource management. Smart cities, leveraging cutting-edge digital technologies and innovative strategies, present a compelling solution to address the complex



challenges associated with urban water management.

Digital water involves real-time data collection, predictive analytics, and digital monitoring systems. These elements combine to transform conventional water networks into intelligent, agile systems that can adapt and respond swiftly to changes in demand, water quality, and infrastructure performance. With the increasing importance of sustainable water management in an increasingly water-pressured world, digital water represents a vital cog in the smart city machinery.

Transformative Integration of Technology Digital Water represents the convergence of advanced digital technologies with traditional water management practices. This revolutionary approach involves the utilization of real-time data, predictive analytics, and digital monitoring systems to enhance the efficiency, reliability, and overall sustainability of urban water networks. By harnessing the power of digitalization, cities can gain unparalleled insights into water usage patterns, quality monitoring, and infrastructure

performance, thereby enabling proactive and informed decision-making.

ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING

The advent of AI and machine learning has empowered cities to unravel the complexities of urban water management. Through advanced algorithms, AI can sift through vast volumes of data to discern patterns, forecast demand, and identify anomalies. Machine learning algorithms can detect irregularities in water quality, anticipate maintenance requirements, and optimize distribution networks, thereby contributing to sustainable and resilient water management practices. AI technology can drive the development of intelligent energy management systems. These systems can analyze patterns in energy usage and adjust the distribution of energy accordingly, thus promoting energy conservation.

They can forecast water demand based on factors such as weather, population growth, and consumption patterns. This helps in better



management and distribution of water resources.

INTERNET OF THINGS (IOT) INTEGRATION

The proliferation of IoT technologies has redefined the landscape of urban water management. IoT-enabled sensors and devices facilitate comprehensive monitoring of water infrastructure, paving the way for precise data collection, real-time analysis, and actionable insights. This interconnected ecosystem allows for the seamless integration of various components in the water supply chain, enhancing operational efficiency and resource optimization. Regarding digital water systems, IoT integration can bring about significant improvements in water management and conservation. IoT sensors and devices can be deployed to monitor water quality, detect leaks, and manage water distribution networks effectively. This can lead to more efficient water supply and management, contributing to sustainable urban development in India.

Additionally, leveraging IoT in smart cities and digital water systems can enable the collection of vast amounts of data. This data can be analyzed using



Artificial Intelligence (AI) algorithms to derive valuable insights for informed decision-making and efficient resource allocation. Danfoss, a global leader in energy-efficient solutions, has been at the forefront of driving innovations in urban water management. Their range of cutting-edge technologies, such as AC drives and variable frequency drives, has revolutionized the energy efficiency and operational precision of water infrastructure systems. These solutions, tailored for water and wastewater applications, optimize pump and motor operations, thereby delivering substantial energy savings while ensuring reliable and efficient water management. Danfoss India has deployed variable frequency drives that offer energy-efficient solutions for a varied range of applications in water infrastructure.



These include water supply, wastewater treatment, and irrigation systems. Leveraging these drives leads to significant energy and cost savings, making them integral components in India's smart city infrastructure. Danfoss establishment of the Common Data Platform facilitates real-time monitoring and control of electricity, heat, and water consumption, optimizing maintenance actions and operations for

utilities. Additionally, it enables improvements in customer awareness about consumption patterns, promoting efficiency-focused behaviors.

The journey towards sustainable and resilient urban water management necessitates an unwavering focus on innovation, technological integration, and strategic partnerships. Through the comprehensive adoption of digital water initiatives in the context of smart cities, urban areas can pave the way for efficient, proactive, and sustainable water management practices. With massive amounts of data and automation, cities can improve overall service delivery, respond quickly to changes, and make informed decisions for the future. Urban areas around the world are gradually awakening to the powerful potential that digital water holds. By adopting a strategic approach that welcomes innovative technologies, our country can be well on its way to smart cities where water management is efficient, sustainable, and savvy.



ABOUT THE AUTHOR



Mr. Mandar Vajjanapurkar is an experienced business manager in the mechanical and industrial engineering industry. With a strong background in product management, business strategy, key account management, and business development, he has proven himself as a skilled sales professional.

Mr. Mandar has been an integral part of Danfoss India close to two decades, specializing in the sales and marketing division for Danfoss Drives. With his expertise and dedication, he has played a crucial role in driving the success of the company in the India region.

Mandar Vajjanapurkar

Head of Drives Sales, Marketing & Services at Danfoss India Region

EDC (MICRO POLLUTANTS) IN WASTE WATER THE OZONE SOLUTION

Different groups of persistent micro pollutants are daily released by human activities into the water cycle.

EDC's (Endocrine Disrupting Compounds), pharmaceuticals (antibiotics, hormones) and , x ray contrast media, personal care products are groups of emerging contaminants all over the world.

EDC's are substances which impact hormone function in animals and humans .
- Natural or man made that disrupt growth, development, or reproduction These are Anthropogenic substances that affect the hormone balance. Growing concern is the Multiplier effect these substances produce .This has forced detailed Investigations into this topic all over the world by countries such as Australia, Switzerland, UK, & USA.

What are these Substances

There are more than 2000 different veterinary and human pharmaceutical agents that contribute to these micro pollutants. Some common compounds are:

- 17-Ethinylestradiol
- Doxycycline
- Sulfametoxazol
- Lipid regulator
- Betablocker
- Ibuprofen
- Paracetamol

50% of these drugs will be secreted unchanged from our Bodies .Pharmaceutical waste water has also been found to contain these compounds in fairly large proportions.

Also water works were tested for these Micro pollutants. The finding were that low concentrations were detected in the intake but the normal treatment chain for surface waters that usually consists of a combination of flocculation, sand filtration, ozone, is very well suited to reduce the pollutants to lower than the detection limit.

Hence the problem is more in eliminating these products from the Pharmaceutical waste waters. These tend to pollute underground water more than the pollution through human excretions

Effects of Pharmaceuticals in the water cycle -Imbalance Ecosystem in River Fish evidence exist for Intersexes males & Decreased sperm counts

Contamination of Drinking Water &/Food Human evidence exist for reduction of fertility & Higher tumor incidence

The following Treatment concepts have been discussed all over the world.

improve the existing biological system
Evaluation of the best additional treatment step (depending on the water source, contaminant and treatment goal) such as
* Activated Carbon*
Oxidation Process (Ozone(UV/H2O2)
* Membranes (Nano, RO)*
Process combination of different steps

Independent studies conducted by RWTH Aachen, EAWAG and others identified Ozone treatment as most effective in terms of elimination rate and treatments costs

Pilot project for EDCs Removal at Regensdorf Project „MicroPoll“
(Sponsored by the government of Switzerland)

The main Goal of this project was : Reduction of the EDC's in the municipal effluent in a large scale pilot (Ozone production: 5 kgO3/h)

Conclusions of the Project

- Ozone treatment achieves removal rates > 90% for most investigated compounds.
- Ozone reduces the over all estrogenicity.
- Relatively low doses (3 to 10 mg/L) ensure selective oxidation of contaminants.
- Ozone reactions are more selective and predictable in waste water than radical reactions.
- Ozone is best available technology for EDC treatment
- Ozone technology is available and reliable in large scale – practical experiences and references exist.

ISSUED IN PUBLIC INTEREST BY
OZONE TECHNOLOGIES & SYSTEMS INDIA PVT LTD
262 II MAIN RD NEHRU NAGAR KOTIVAKKAM OMR CHENNAI 600096
e-mail :otsilozone@gmail.com
Web: www.otsil.net

BOILING LAKE'S VOLCANIC MYSTERY



Nestled deep within the lush, mountainous terrain of Dominica's Morne Trois Pitons National Park lies a natural wonder unlike any other—Boiling Lake. This bubbling cauldron of steaming water, enveloped by the island's tropical rainforest, is one of the most mysterious and dramatic geothermal features on Earth. With its eerie, mist-shrouded atmosphere and constant churning waters, Boiling Lake stands as a testament to the raw, untamed power of the planet beneath our feet.

Boiling Lake, a flooded fumarole in an active volcanic zone, is precisely what its name suggests—a lake that is perpetually boiling. The lake's surface roils and steams, emitting plumes of vapor as the water reaches temperatures close to 197°F (92°C) around the edges, while the center is too hot to measure accurately. The lake is heated by volcanic gases escaping from the Earth's crust, which create a dynamic and volatile environment below the surface. The lake's water is replenished by rainfall and surrounding streams, only to be reheated and sent into a violent frenzy once again by the fiery forces beneath.

First documented in 1870 by explorers, Boiling Lake has captivated scientists, adventurers, and mystics alike. What lies beneath this mysterious boiling

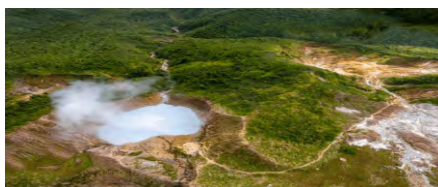
cauldron remains unknown—its depth has yet to be accurately measured, and its ever-changing conditions make it a challenging site to study. It fluctuates wildly in both size and intensity, with some historical records noting periods where the water has receded or even temporarily drained, leaving only a steaming, rocky basin in its wake.

Theories about Boiling Lake's behavior are tied to its volcanic origins. Dominica, part of the volcanic Lesser Antilles island chain, sits atop a geologically active region, with magma chambers and fault lines lurking far below the surface. The lake itself is thought to be the vent of an underground chamber filled with volcanic gases. Periodic shifts in these gases, pressure, or even minor volcanic activity may explain the lake's unpredictable changes in water level and boiling intensity.

Beyond its scientific intrigue, Boiling Lake has a mystical allure. Local legends speak of the lake as a portal to another realm, or as a place where spirits and energies converge. For centuries, indigenous peoples and inhabitants of Dominica have revered this boiling body of water, believing it to hold supernatural powers. Even today, trekkers who brave the arduous six-hour hike through rugged terrain to witness the lake firsthand often describe the experience as

otherworldly, standing at the edge of this natural cauldron and feeling the heat and energy radiating from its depths.

Boiling Lake, with its violent churn and volcanic breath, remains one of nature's most compelling enigmas. It serves as both a geological marvel and a reminder of the Earth's unpredictable power, a place where science and myth intermingle, and where the forces of creation and destruction meet in a fiery dance just below the surface. Like the mysteries of its past, Boiling Lake's future remains uncertain, forever shaped by the volatile forces that give it life.



T E N D E R

Water proofing treatment including necessary repairs water supply drainage installation and other allied civil works in residential and other buildings under central store sub dn. pwd. bhopal..			
Category	Sewer, Sewerage, Sanitation, Environmental Services tenders		
Location	Madhya Pradesh, Huzur		
Bid Open Date	21 October 2024 2024	Tender Value	84.01 Lac
Doc Collection Date	18 October 2024 2024	FTID	241003495960
Construction of the gray water treatment at near haldibari local market in banarhat gram panchayat banarhat block Category Construction, Infrastructure, Civil Work tenders.			
Category	Construction, Infrastructure, Civil Work tenders		
Location	West Bengal, Jalpaiguri		
Bid Open Date	24 October 2024	Tender Value	95.27 Lac
Doc Collection Date	23 October 2024	FTID	2410034148030
State plan 2024 25 Kwss renovation of water treatment plant replacing of old filter media of filter bed no.1 and no.6. of water treatment plant at chavasseryparamba general civil work.			
Category	Furniture, Sports, Home Equipments tenders		
Location	Kerala, Thalassery		
Bid Open Date	11 October 2024	Tender Value	21.18 Lac
Doc Collection Date	09 October 2024	FTID	2410034265940
Construction Of Water Treatment Plant Infornt Of Jadupur Phc Insansad No Vii Mouza Jadupur Under Nawda Jadupur Gp Aap No 81 Activity Id 72365771 (Aap 2023-24)			
Category	Construction, Infrastructure, Civil Work tenders		
Location	West Bengal, Malda		
Bid Open Date	11 November 2024	Tender Value	15.00 Lac
Doc Collection Date	06 November 2024	FTID	2410014153810
Special repair replacement of ppr di pipeline from hq area pump house to smq area and water treatment system at rsph and hq area pump house at afs digaru 2 nd call.			
Category	Sewer, Sewerage, Sanitation, Environmental Services tenders		
Location	Assam, Shalonibari		
Bid Open Date	17 October 2024	Tender Value	61.45 Lac
Doc Collection Date	14 October 2024	FTID	24093043470
Installation Of Arsenik Removal Water Treatment Plan With Solar At Jorgachha Bhjk Juniar Madrasha At Jorgachha			
Category	Electricity, Solar, Wind, Biogas, Biomass, Gas, water, Energy tenders		
Location	West Bengal, Murshidaba		
Bid Open Date	05 November 2024	Tender Value	12.84 Lac
Doc Collection Date	30 October 2024	FTID	240930446880

T E N D E R

Providing Water Proofing Treatment Other Work To Borgad Esr P.No.2, Nishant Vilage Esr, P.No.3 Indira Gandhi Esr P.No.4 In Panchvati Division.

Category	Agro, Marine, Food Products tenders		
Location	Maharashtra, Nashik		
Bid Open Date	09 October 2024	Tender Value	21.17 Lac
Doc Collection Date	08 October 2024	FTID	2409304127080
Construction Of Water Treatment Plant At Nischintapur Under Sd-iii, Cd, Apwd, Diglipur			
Category	Construction, Infrastructure, Civil Work tenders		
Location	Andaman & Nicobar, Diglipur		
Bid Open Date	10 October 2024	Tender Value	56.80 Lac
Doc Collection Date	10 October 2024	FTID	2409274184110



Customized Webinar With B2B Meetings

LET'S CONNECT DIGITALLY VIA WEBINAR

REGISTER NOW



More Information
+91 85889 11033



For case study submission, write to
deepak.chaudhary@eawater.com



Visit Now:
www.eawater.com

EVENT CALENDAR



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

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 - 28 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

EVENT CALENDAR



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

April 2025

China Clean Expo Shanghai

31 Mar - 03 Apr 2025
Shanghai New International Expo Centre(SNIEC), Shanghai, China
www.chinacleanexpo.com/en

American Worlds Water Association Annual Conference

07 - 10 Apr 2025
Anaheim, USA
www.inawwa.org/event/2025-annual-conference-april-21-25th/

Baku Water Week

08 - 10 Apr 2025
Baku Expo Center

bakuwaterweek.az/en/

Water Environment Association of Ontario Annual Conference

13 - 15 Apr 2025
London Convention Centre, London, Canada
weao.org/about/

Smart Water Systems

14 - 15 April 2025
London, United Kingdom
www.smgconferences.com

MiningWorld Russia

23 - 25 Apr 2025
Crocus Expo International Exhibition Center, Krasnogorsk, Russia
miningworld.ru/en/

Our Ocean Conference KOREA

28 - 30 Apr 2025
Centum City Industrial Complex, Busan, South Korea
ourocean2025.kr

2025 Water for Food Global Conference

28 Apr - 02 May 2025
University of Nebraska
waterforfood.nebraska.edu

May 2025

Water Management Show (WaterEx)

01 - 03 May 2025
ICCB, Dhaka, Bangladesh
shsavor-watermanagement.com

International Water Summit 2025

05 - 06 May 2025
Midreshet Ben-Gurion, Israel
www.watersummitziwr.com

Power of Water Canada Technical Conference & Trade Show 2025

07 - 09 May 2025
Niagara-on-the-Lake, Canada
powc25.vfairs.com/en/

Stormwater and Wastewater Conference Saudi Arabia 2025

11 - 12 May 2025
Jeddah Hilton, Jeddah, Saudi Arabia
arabiastormwaterandwastewaterksa.com

Commonwealth Chemistry Congress (CCC)

11 - 14 May 2025
Stellenbosch, South Africa
africacommwealthchemistry.org

Industrial Water Management - Effective Process

Water Treatment 2025
15 - 16 May 2025
ibis Styles Berlin Treptow, Berlin, Germany

Enlit Africa

20 - 22 May 2025
Cape Town, South Africa
www.enlit.world/events/enlit-africa-2024/

CWRA Annual Conference 2025

25 - 29 May 2025
Penticton, Canada
canadainconference.cwra.org/upcomingconferences/

June 2025

World Environment Expo 2025

04 - 06 Jun 2025
Greater Noida, India
indiaworldenvironment.in

Green Tech 2025

03 - 05 Jun 2025
Berlin, Germany
greentechfestival.com

AWWA Annual Conference & Expo 2025

08 - 11 Jun 2025
The Colorado Convention Center, Denver, USA
<https://ace.awwa.org/>

Water & Long-Term Value 2025

10 June 2025
Skytop Studio, Rome, USA

Infrastructure Africa 2025

11 - 12 Jun 2025
Johannesburg, South Africa
www.infrastructure-africa.com

Future of Utilities Summit 2025

11 - 12 Jun 2025
QEII Centre, London, UK
futureofutilities.com/events/summit/

Groundwater Quality 2025

10 - 13 Jun 2025
Bordeaux INP, Talence, France
groundwaterquality2025.fr

DrinkTechAsia 2025

12 - 15 Jun 2025
Bangkok, Thailand
www.propakasia.com

China (Guangzhou) International High-end

Drinking Water Industry Expo 2025
12 - 14 Jun 2025
Guangzhou, China
waterexpocn.com/en/

Michigan Water Environment Association Annual Conference 2025

15 - 18 Jun 2025
Boyne Mountain Resort, Boyne Falls, US
Awww.mi-wea.org

IFAT Brasil 2025

25 - 27 Jun 2025
Sao Paulo Expo, São Paulo, Brazil
ifat.de/en/brasil/

BAYWATCH



PORT DEVELOPMENT MEA FORUM

21-22
OCTOBER 2024

DUBAI, UNITED ARAB EMIRATES

ADVANCEMENTS IN DEVELOPING SMART AND SUSTAINABLE PORT INFRASTRUCTURE
FOR STRENGTHENING MIDDLE EAST & AFRICA'S MARITIME PORTFOLIO

www.portdevelopmentmea.com

ORGANIZED BY 

The premier Port Development Middle East & Africa Forum sets the stage for industry leaders, government officials, and key stakeholders to converge and discuss transformative strategies shaping the port landscape in the Middle East and Africa. With the region experiencing phenomenal growth in maritime trade, the forum serves as a pivotal platform to navigate the challenges and opportunities faced by port operators and investors.

Date: 21-22 October 2024

Venue: Movenpick Grand Al Bustan, Dubai, United Arab Emirates

Website: portdevelopmentmea.com

The Middle East and Africa region boast some of the busiest and fastest-growing ports in the world. The region's maritime trade volume has been steadily increasing over the past decade, with significant investments pouring into infrastructural enhancements and expansion projects. Key players in the industry are aggressively modernizing port facilities and adopting cutting-edge technologies to meet the escalating demands of global trade in an increasingly competitive environment. With a diverse lineup of speakers representing government bodies, port authorities, shipping companies, logistics firms, and technology providers, the conference promises a wealth of knowledge-sharing opportunities and networking prospects.



Cairo Water Week (CWW) has solidified itself as a key water event in the Middle East and worldwide, drawing attention from stakeholders who recognize water's vital role in life. Over time, CWW has evolved into a significant international forum, serving as a primary platform in the Middle East and Africa for constructive dialogue on pressing water issues. The upcoming seventh edition, Cairo Water Week 2024, scheduled for October 13th to October 17th in Cairo, Egypt, will focus on the theme "Water and Climate: Building Resilient Communities."

Date: 13-17 October 2024

Venue: Triumph Hotel, Cairo, Egypt

Website: matecia.com

"This year's event aims to explore the intricate relationship between water and climate, emphasizing their collective impact on community resilience. Discussions will extend beyond recognition, delving into the need for sustainable and adaptive practices that fortify communities against the challenges of climate change and water scarcity. The spotlight will be on investing in early warning systems to enhance crisis response and recovery efforts, ensuring timely interventions during floods or droughts. The overarching goal is to construct water and climate resilient communities, ensuring equitable access to clean and safe water, empowering people to thrive amidst evolving environmental conditions."

BAYWATCH



The 20th EverythingAboutWater Expo 2025 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: 28-30 August 2025

Venue: Bharat Mandapam, Pragati Maidan, New Delhi

Website: www.eawaterexpo.com

India is currently on a trajectory towards severe water stress, with projections indicating a critical situation by 2030. 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 20th EverythingAboutWater Expo 2025 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.



8th WATER LOSS FORUM
SU KAYIP VE KAÇAKLARI FORUMU
23-24 Ekim / October 2024



Water is essential for life, making its management critical for urban development. The 10th Development Plan emphasizes meeting drinking water needs, preventing water loss, promoting eco-friendly materials, and upgrading supply networks. Municipalities now prioritize infrastructure investments to reduce water losses. In line with these goals, the Regulation on Control of Water Losses in Drinking Water Supply, introduced on May 8, 2014, marked a turning point for the sector.

To further address this, they launched the Water Loss Turkey Forum & Fair in 2014. This platform focuses on optimizing water use, reducing non-revenue losses, improving efficiency, and promoting best practices in integrated water management. Since 2014, the Forum, organized by the Turkish Society for Infrastructure and Trenchless Technologies, has united professionals, municipalities, universities, and financial experts under the Ministry of Agriculture and Forestry's guidance, shaping the future of water management.

Date: 23 - 24 October 2024

Venue: WOW Istanbul Hotels & Conference Center, Yeşilköy Köyü, Turkey

Website: www.waterlossforum.org/en_US/

SR. NO.	COMPANY	PAGE NO.	Telephone	E-mail	Website
111	22nd Annual Buyer's Guide 2024	35	91 85889 11033	enquiry@eawater.com	www.eawater.com
112	Andritz Technologies Pvt Ltd	03	-	separation.in@andritz.com	andritz.com/separation
113	Axis Solutions Pvt. Ltd.	01	+91 79229 00860	info@axisindia.in	www.axisindia.in
114	CII Water & Waste Expo 2025	09	91 98183 91920	amit.sharma@cii.in	www.watersolidwaste.in
115	Customized Webinar by EAW	39	+91 85889 11033	enquiry@eawater.com	www.eawater.com
116	EAW Training & Conferences	Inside Back Cover	+91 85889 11033	enquiry@eawaterexpo.com	www.eawaterexpo.com
117	EverythingAboutWater eMagazine	21	+91 85889 11033	enquiry@eawaterexpo.com	www.eawaterexpo.com
118	EverythingAboutWater Expo 2025	Back Cover	+91 85889 11033	enquiry@eawaterexpo.com	www.eawater.com
119	EverythingAboutWater FREE eMagazine	55	+91 85889 11033	enquiry@eawater.com	www.eawater.com
120	EverythingAboutWater Magazine	25	+91 85889 11033	enquiry@eawaterexpo.com	www.eawaterexpo.com
121	MM Aqua	05	+91 333001 9000	info@mmaqua.in	mmaqua.in
122	Myron L Company	Front Cover- Inside	+1- 760 438 2021	kwilson@myronl.com	www.myronl.com-
123	Port Development Middle East & Africa Forum	11	+971 52 22 34719	ashraf@gmevents.ae	www.portdevelopmentmea.com
124	Subscription Form- EAW Magazine	33	+91 85889 11033	enquiry@eawater.com	www.eawater.com
125	Subscribe EAW Magazine	68	+91 85889 11033	enquiry@eawater.com	www.eawater.com
126	Waste Technology India Expo 2024	27		visitor@cleanindiashow.com	www.cleanindiashow.com
127	Water Loss Aisa	13	60 12 231 5583	info@protemgroup.com	www.waterlossasia.com
128	Web Banner Ads	18	+91 85889 11033	enquiry@eawater.com	www.eawater.com
129	World Utilities Congress	15	+971 4 248 3221	nikitachavan@dmgevents.com	www.worldutilitiescongress.com
130	Korea Industry Expo 2024	23	+82 2-6000-6727/6680	tech@smarttechindia.org	www.koindex.kr/eng

Thank You for Advertising with Us!

This Index is published as a service. Although every effort is taken to make it accurate, EverythingAboutWater assumes no responsibility for errors or omissions



FAST TRACK YOUR GROWTH

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**
- **MUNICIPAL FORUM**
- **THE INDUSTRY DISCUSSION FORUMS**

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**
- **WATER RECYCLING**
- **CASE STUDIES: MULTIPLE FROM DIFFERENT INDUSTRIES**
- **PRACTICE EXAMPLE: SETTING UP 1000 M³/DAY WATER RECYCLING SYSTEM (WRS)**

and many more...

SHARE

NETWORK

GROW



Earth Water Foundation

7, Khullar Farms, Mandi Road, Sultanpur, New Delhi 110030, India

E: enquiry@eawater.com, W: www.eawater.com



EVERYTHING ABOUT WATER EXPO

SOUTH ASIA'S LARGEST WATER
EXHIBITION AND CONFERENCE 2025

28-30 AUGUST 2025 | **Pragati Maidan**, New Delhi, India

Join us at the Water Expo and the part of the solution for a sustainable future.
Together, we can make waves of positive change, SEE YOU THERE!

Where the Water
Community Comes
Together

250+
PARTICIPATING COMPANIES

10,000+
FOCUSED VISITORS

500+
CONFERENCE DELEGATES

Organized By



Supported by

