

WWW.EAWATER.COM



REG. NO: DELENG/200 1/3092

NOVEMBER 2023 | ₹800 | US \$ 20

EVERYTHING ABOUT WATER

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

Follow us on: [f](#) [t](#) [g+](#) [i](#) [in](#) [y](#)

URBAN AND INDUSTRIAL SUSTAINABLE

Water

Management



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



ONLINE WATER ANALYZER

AXIS

SWAS SYSTEM



Steam & Water Analysis Systems

BRIX

ANALYZER & CONTROLLER



COD, BOD, pH & TSS Analyzer

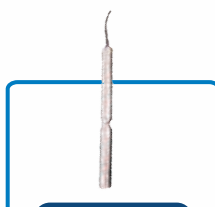


Turbidity / Chlorine Analyzer



Smart Controller

S
E
N
S
O
R
S



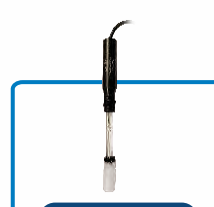
COD, BOD & TSS Sensor



Ammonium Sensor



Turbidity Sensor



Chlorine Sensor



Multiparameter Controller

Knick



pH Sensors



Conductivity Sensors



Oxygen Sensors



Portable Analyzer



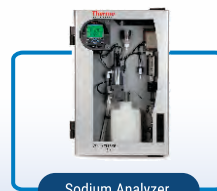
Transmitter

Thermo
SCIENTIFIC

A
N
A
L
Y
Z
E
R
S



Silica Analyzer



Sodium Analyzer



Ammonia Analyzer



Hardness Analyzer

AXIS AXIS SOLUTIONS PVT. LTD.

Plot No. 324, Road No.5, G.I.D.C., Kathwada, Ahmedabad-382 430, 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
- 18 Global Water News
- 15 Subscription Card- EverythingAboutWater
- 66 Tender News
- 64 The Ozone Page – Column

In Depth:

- 30 **Balancing Urban Growth and Advancing Sustainable Industrial Water Management Amidst Urbanization.**
By Mandar Vaijanapurkar
- 34 **Revolutionizing Urban Water Management: The Power of Sensor Integration and Real-Time Monitoring.**
By Gaurav Garg
- 38 **Household Chores could save millions of freshwater.**
By Kavita Kapadia & Dr Heli Shah
- 42 **Smart Cities: Digital Water Supply Control.**
By Dilip Yewalekar and Manisha Kinge
- 46 **Challenges and Future Trends for Water Management in Cities.**
By Vishal Kotadiya

Case Study:

- 48 **Connected Solutions for Sustainable, Resilient and agile water Infrastructure.**
By Cecelia Correia
- 50 **Operational Efficiencies Created With Smart Water Technologies.**
By Sourav Daspatnik
- 52 **Northern Michigan Township - High-strength wastewater challenge.**
By Christopher French

TECH 2.0:

- 54 **Urban and Industrial Sustainable Water Management: A Collective Responsibility.**
By Dr. R. Mehta and Dr. V. Tripathi
- 56 **Water Monitoring: Essential for Sustainability.**
By Mohammed Abdul Rahman
- 60 **How food and beverage companies can improve water efficiency with the right pump.**
By Adeel Hassan
- 65 UNWIND
- 68 Event Calendar
- 70 Baywatch
- 72 Advertiser's Index



Raybon Chemicals & Allied Products
Out Performing Polymers with Outstanding Service

FEATURES

- Fritz Filter is the world's first microfiltra on system that is NOT pressure-driven.
- It is designed to treat high volumes of water.
- The self-cleaning filtra on system is capable of filtering up to a 10-micron range
- Fritz filter is a replacement for conven onal sand filter
- Fritz filters can remove TSS, algae, and other solid-bound parameters without clogging the pores.
- Fritz filter is ideal for cooling tower side stream filtra on
- It can be used to recover fibre in the paper industry
- Filtra on rate and quality can be improved with the help of coagulant and flocculants dosage.
- Ideal for prefiltra on before UF/RO plants





813, Samanvay Silver, B/s Royal Orchid Central Hotel, Akota - Mujmahuda Road, Vadodara - 390020
chemicals@raybonchemicals.com

www.raybonchemicals.com

[VISIT OUR WEBSITE](http://www.raybonchemicals.com)

[0265-2985733, 2986733](tel:0265-2985733)

Transchip^{3.0}

Advanced MBBR Technology
In Association with Mutag Germany

~ 5,500 m²/m³

**MBBR MEDIA
doesn't work in ETP!**

**TRANSHIP 3.0 has
proven it's a MYTH**

DRDO Alkem Labs Ltd
Auro Dyeing
Gujarat Narmada Fertilizers Company

CPWD TATA BSL Ltd.

Alkem Labs Ltd Eros Hotels

NTPC Leachate treatment plant, Varanasi

Coca Cola Eros Hotels

Grasim Ltd Sun Pharma Ltd.

Sharmanji Yarns Omex builders

NTPC Leachate treatment plant, Varanasi

12 MLD Kukatpally STP Par Formulations

Bhushan power ltd. QUA Water Technologies Pvt. Ltd.

O. P. Jindal Global University



BEYOND CONVENTIONAL

Transcend Cleantec Pvt. Ltd.

S No 37/2, Shed no 463/1, Near Joshi Transformer,
Narhe, Taluka Haveli, Pune-411041

+91- (0)- 8669190129

info@transcendcleantec.com

www.transcendcleantec.com



**Earth Water Foundation**

A1/152, Neb Sarai,
IGNOU Road,
New Delhi 110 068, India

www.eawater.com

MANAGEMENT

Managing Director & Group Editor:
Sunil Ghorawat

BUSINESS HEAD

Assistant Vice President:
Nisha Aggarwal

Editorial Incharge:

Simran Arora

ART

Design Team @EAW

MARKETING & OPERATIONS

Manager: Rahul Mourya

PUBLISHER

Earth Water Foundation
A1/152, Neb Sarai, IGNOU Road
New Delhi 110 068, India
Tel: +91 11 4106 3970

**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

OFFICE ADDRESS

A1/152, Neb Sarai, IGNOU Road
New Delhi 110 068, India
Tel: +91 97188 24607 / 85889 11033

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.

FLOWING FORWARD: NURTURING SUSTAINABILITY IN URBAN AND INDUSTRIAL WATER MANAGEMENT

Dear Esteemed Readers,

In this edition of EverythingAboutWater Magazine, we embark on a concise yet enlightening exploration into the theme of "Urban and Industrial Sustainable Water Management." As the world continually transforms, the focus on sustainable practices in water management becomes increasingly crucial for the well-being of our urban and industrial landscapes.

Urban and industrial areas play a pivotal role in shaping the future of water management practices. In this issue, we spotlight the imperative synergy between technology and water systems within these environments. The evolving tapestry of our cities and industries necessitates a delicate balance, and we aim to unravel the intricate dynamics that contribute to sustainable water management.

Within the pages that follow, anticipate a condensed yet insightful glimpse into the latest advancements propelling sustainable water management in urban and industrial settings. From innovative infrastructure solutions to data-driven resource optimization, we delve into the strategies that promise a more resilient and eco-friendly future.

This edition serves as a succinct compass, directing leaders, communities, and policymakers towards solutions that harmonise urban and industrial landscapes with sustainable water practices. As you navigate through these brief but impactful pages, envision a future where our cities and industries seamlessly integrate technology with ecological stewardship in their water management endeavours.

In conclusion, I extend my heartfelt gratitude for joining us on this expedition into "Urban and Industrial Sustainable Water Management." May the distilled insights from these pages inspire transformative actions in your respective domains, ensuring a resilient and water-secure future for generations to come.

Thanks & Regards,

Simran Arora

Editorial Incharge

EverythingAboutWater Magazine



In my dreams for the future,
space technology is applied to daily life,
plant-based substitutes replace plastics,
and personalized medicines become a reality.
Because I believe that a planet full of joy
is a world where everyone can share their dreams.
I'll never stop dreaming.

The next chapter. It begins with a dream.

Weaving the story of our planet.
Making a more fruitful society.
One where we can share our dreams
to our hearts' content.
We, at Yokogawa, will continue to support
all those who pursue beautiful dreams.

**What's next for our planet?
Let's make it smarter.**

YOKOGAWA 
Co-innovating tomorrow™

NATIONAL W

DROPLETS

Danfoss joins First Movers Coalition and commits to drive global development of sustainable aluminum

The World Economic Forum has announced that Danfoss has joined the First Movers Coalition (FMC), a global coalition to decarbonize hard-to-abate industries. Danfoss joins the FMC aluminum sector, committing that at least 10% (by volume) of all the company's primary aluminum procured per year will be low carbon by 2030. Additionally, Danfoss commits to ensuring that at least 50% of all aluminum used annually is composed of secondary aluminum by 2030.

As a member of the FMC, Danfoss joins a group of industry players harnessing purchasing power to create a market for low-carbon aluminum, sending a strong market demand signal for the emerging technologies essential for a net-zero transition. This commitment by members focuses on creating a sustainable value chain for aluminum and achieving a 50% reduction in CO2 emissions from primary aluminum production by 2050. Danfoss has already entered into negotiations and begun contractual agreements with suppliers for low-carbon aluminum.

Ravichandran Purushothaman, President, Danfoss India Region says: "As a sustainable organization serving the world's energy efficiency needs for 9 decades now, joining FMC is a testimony of Danfoss' strong commitment towards decarbonization and sustainability at the global level. This development could be an inspiration for Indian manufacturing sector, industry bodies and the govt., for a consortium on this line that will drive the economy of scale for procurement and localization of net-zero solutions and make them affordable as well as accessible across value chains. The initiatives like FMC will accelerate India's net-zero transformation for a greener and sustainable tomorrow."

Led by the World Economic Forum and the US Government, the FMC targets hard-to-abate sectors including aluminum, aviation, chemicals, concrete, shipping, steel, and trucking, which are responsible for 30% of global emissions. For these sectors to decarbonize at the speed needed to keep the planet on a 1.5-degree pathway, they require low-carbon technologies that are not yet competitive with current carbon-intensive solutions.

FMC member companies commit to purchasing a percentage of near-zero or zero-carbon solutions from suppliers, which may come at a premium cost. If a critical mass of global companies commits a certain percentage of their future purchasing to clean technologies in this decade, this will create a market tipping point that will accelerate their affordability and drive long-term, net-zero transformation across industrial value chains. The FMC is currently composed of 82 members, all global players in their markets.

Rob van Riet, Interim Head, First Movers Coalition, said: "We are thrilled to welcome Danfoss to the First Movers Coalition, and are eager to work together towards the scaling up of the low-carbon aluminum market globally. Our joint focus will be on surfacing solutions to decarbonize aluminum and accelerate their deployment with committed organizations like Danfoss, aiming to bring these solutions to commercial scale."

The aluminum industry generates approximately 2% of global emissions, but it also has the strongest potential to become carbon negative by 2050. Switching to low-carbon electricity is the biggest step the industry can take to deliver a sector compatible with net zero targets.

Union Minister For Jal Shakti Releases Dynamic Ground Water Resource Assessment Report For The Country For The Year 2023

Union Minister for Jal Shakti Releases India's Dynamic Ground Water Resource Assessment Report for 2023. The Union Minister of Jal Shakti, Shri Gajendra Singh Shekhawat released the Dynamic Ground Water Resource Assessment Report for the entire country for the year 2023 today. The assessment was carried out jointly by Central Ground Water Board (CGWB) and States/UTs, which can be used for taking suitable interventions by various stakeholders. As per the 2023 assessment report, the total annual ground water recharge for the entire country is 449.08 billion cubic meters (BCM), marking an increase of 11.48 BCM compared to the previous year (2022) and annual ground water extraction for the entire country is 241.34 BCM. Further, out of the total 6553 assessment units in the country, 736 units have been categorised as 'over-exploited'.

- Assessment indicates increase in ground water recharge
- Analysis indicates improvement in ground water conditions in 226 assessment units in the country compared with 2022 assessment data
- Total annual ground water recharge for entire country is 449.08 billion cubic meters (BCM), while extraction is 241.34 BCM
- Stage of ground water extraction stands at 59.23%.
- Out of total 6553 assessment units, 4793 units categorized as 'Safe'
- Such joint exercises between CGWB & States/UTs were carried out earlier in 1980, 1995, 2004, 2009, 2011, 2013, 2017, 2020 and 2022

A detailed analysis of the information collected from the assessment indicates increase in ground water recharge which may mainly be attributed to increase in recharge from canal seepage, return flow of irrigation water and recharges from water bodies/tanks & water conservation structures. Further, analysis indicates improvement in ground water conditions in 226 assessment units in the country when compared with 2022 assessment data. In addition, overall decrease in number of over-exploited units and decrease in stage of groundwater extraction level have also been observed.



Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Ms. Debashree Mukherjee; Secretary, Department of Drinking Water and Sanitation, Ministry of Jal Shakti, Ms. Vini Mahajan; Joint Secretary (A, IC & GW), Shri Subodh Yadav; Chairman, CGWB Dr. Sunil Kumar Ambast were present on the occasion.

ATER NEWS

Village in mumbai revolutionising in water management

Located within the arid terrains of Maharashtra's Ahmednagar, 250 kilometres away from Mumbai, the village of Hiware Bazar stands as a beacon of hope and innovation in the field of water conservation.



In an area frequently beset by droughts and severe shortages of drinking water, Hiware Bazar has risen as an exemplar of sustainable living, reshaping the storyline of rural resilience. Previously contending with the harsh challenges posed by water scarcity, the village has transformed into a prime illustration of how deliberate water management can uplift an entire community. Cultivating Sustainability through Innovative Water Management Central to Hiware Bazar's triumphant narrative lies its innovative irrigation system. Guided by the dynamic leadership of Sarpanch Popatrao Pawar, the villagers have executed watershed development initiatives, utilizing rainwater to replenish groundwater levels. The strategic construction of traditional water harvesting structures, including check dams and contour trenches, ensures a consistent supply for agricultural needs throughout the year. The metamorphosis extends beyond water conservation. Embracing afforestation, the villagers regularly plant trees to combat soil erosion and augment water retention. The once-barren landscape now showcases abundant greenery, a stark departure from the dry conditions prevalent in many neighbouring villages.

What distinguishes Hiware Bazar is its unwavering dedication to community involvement. Villagers actively contribute to preserving and maintaining water resources, fostering a collective sense of ownership that surpasses individual interests. Collective responsibility forms the bedrock of their success, transforming Hiware Bazar into a closely-knit, water-conscious community. The village not only secured its agricultural sustenance but also addressed the pressing issue of drinking water. Every household in Hiware Bazar now enjoys access to potable water, a privilege in numerous rural areas grappling with the persistent threat of water scarcity. This accomplishment stems from the community's strict adherence to water usage norms and efficient water source management.

As Hiware Bazar celebrates its remarkable journey, it stands as a living testament to the power of local initiatives in combating environmental challenges. The village serves as an inspiration for neighbouring communities and beyond, proving that with unity, innovation, and a deep-rooted connection to the land, even the harshest landscapes can be transformed into thriving oases of sustainability. Hiware Bazar's success resonates not only in Maharashtra but as a beacon of hope for regions grappling with the global issue of water scarcity.

DROPLETS

Aquatech Wins 2023 Green Innovation Award at Industrial Green Chemistry and Engineering World (IGCW) Convention

Aquatech celebrates winning the Green Innovation Award, recognizing our pioneering water technology contributions to advancing industrial sustainability in India.

We are proud to announce that Aquatech has been honored with the 2023 Green Innovation Award in the mid-size company category at the 7th Annual Industrial Green Chemistry and Engineering World (IGCW) Convention, held on November 6 in Mumbai, India.

This award acknowledges Aquatech's significant contributions to advancing industrial sustainability and profitability in India through groundbreaking water technology solutions tailored to our customers' unique needs.

The award was presented by Shri. Susanta Kumar Purohit, Joint Secretary Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizer, the Government of India, and Dr. John C. Warner, President & CEO of The Technology Greenhouse, during the convention's opening. Recognizing our technological advancements by a panel of 31 jurors, each with two to three decades of industry and scientific expertise, was a tremendous honor.

Notable past award winners have included key industry players such as Tata Chemicals, Reliance Technology Group, Orchid Pharma, and Praj.

A special appreciation for Deepak Kachru, Prasanna Borse, Narender Singh Bisht, and C Ravi, who made receiving this IGCW Award possible through their contribution to innovation and the development of new processes and product technologies.



About Industrial Green Chemistry World (IGCW)

IGCW is the first and largest Industrial convention focusing on expanding, implementing and commercializing green chemistry and engineering-based technologies and products in the chemical industry.

IGCW focuses on the four most chemistry-intensive sectors: Pharmaceuticals (including Pharmaceuticals & intermediates), Agrochemicals, Dyes & Pigments, and Specialty Fine and Performance Chemicals.

IGCW Awards acknowledges the commitment demonstrated by individuals & organizations to develop and commercialize green and sustainable chemistry-based innovations that make a positive difference to the quality of human health and the environment.

Dakshina Kannada Sets up Committee for Water Management

Mangaluru's Dakshina Kannada district administration has constituted a committee, headed by the Assistant Commissioner (AC), to manage various water resources and thereby prevent a drinking water crisis during peak summer. Deputy Commissioner Mullai Muhilan MP said initiatives will be taken to ensure judicious use of water available in check dams and various other water resources in the district.



"Directions have been given to impound water stored in Thumbe vented dam, multi-village water scheme sources, and all dams in the district and manage the supply cautiously. A decision in this regard has been taken in the wake of deficit rainfall in Dakshina Kannada district," the DC told reporters.

On the new bridge-cum-barrage built across the Nethravati River at Harekala, which is yet to be commissioned, the DC said there will be no water scarcity in Mangaluru city once the water storage commences in the dam. However, storing water to its maximum level will submerge surrounding areas. Hence, maximum water storage can be ensured only if land in surrounding areas is acquired.

"I have directed officials from the minor irrigation department to submit a detailed proposal in this regard," he said. "Water from the Thumbe vented dam of the Mangaluru City Corporation (MCC) is also supplied to Ullal City Municipality areas, Mulki town panchayat, and gram panchayats on the stretch between Thumbe and Mangaluru. Silt from the Thumbe vented dam was removed in 2018-19. The water storage in the dam can be increased if the silt removal work is undertaken again. To ensure better coordination in water supply, the committee headed by the AC will hold meetings," he added. To a query, the DC said that since the Mangalore Refinery and Petrochemicals Ltd., (MRPL) has set up a desalination unit, pressure on the Thumbe dam has been reduced.

STP to Treat Waste From Gurugram's New Sectors to be Ready Soon

A sewage treatment plant at Jahajgarh with 20 MLD capacity is likely to be operational soon in new sectors as Gurgaon Metropolitan Development Authority (GMDA) has completed its construction. Officials said they were currently conducting trials at the treatment plant, which will process waste generated from new sectors like 103 and 106. In 2019, the National Green Tribunal (NGT) directed that untreated waste should not be discharged into stormwater drains.

Initially, MCG had planned to construct a 10 MLD STP at Jahajgarh in compliance with the action plan submitted to NGT. However, the plan was revised, and GMDA took up the project of constructing a 20 MLD STP to treat sewage generated in Jahajgarh village and adjoining areas.



GMDA had allotted the work for construction of a 20 MLD STP in August 2020, with an initial deadline of 18 months to address the issue of discharge of untreated sewage into leg-2 of the master stormwater drain. However, the project missed its deadline due to various reasons like Covid-19 induced lockdown and an annual construction ban due to air pollution.

Metrowater Clears Encroachments Along Conduit Lines Transporting Water to Chennai's Kilpauk Treatment Plant

The Chennai Metropolitan Water Supply and Sewerage Board or Metrowater has started clearing encroachments on British-era conduit lines, which carry water from the Red Hills reservoir to Kilpauk Water Treatment Plant.

The water agency has identified nearly 1,300 encroachments from Rajamangalam to Kilpauk water works. It carried out an analysis using differential global positioning system (DGPS) and drone survey in the stretch to identify the changes in land use and the extent of encroachments of the boundary.

TECHNOLOGY FOR PRIMARY AND SECONDARY SLUDGE MANAGEMENT



DISSOLVED AIR FLOTATION(DAF)

Available
with patented
gas mixing
technology

EXPERIENCE THE POWER OF
CHEMISTRY WITH BUBBLES



PRECISION DESIGN & ENGINEERED

MULTI-DISC SCREW PRESS

for consistent lifecycle performance

Multi-Disc Dehydrators JD SERIES



BEYOND CONVENTIONAL

Transcend Cleantec Pvt. Ltd.

Sr. No. 37/2, Shed No. 463/1, Near Joshi Transformer, Narhe, Taluka Haveli, Pune - 411 041.

+91 (0) 7767050300 enquiry@transcendcleantec.com www.transcendcleantec.com

The three conduit lines, the oldest of which was built with brick masonry in 1914, are under constant threat of encroachments. The third dilapidated line is now being reconstructed. The lines, running for a distance of 10 km-12 km, carry nearly 224 million litres of raw water a day drawn from the Red Hills reservoir.



While these lines run underground, at a depth of around 2 m, the land they pass through, spread over nearly 165 acres, faces the risk of being encroached upon owing to rapid urbanisation. The conduit lines go through Surapet, Korattur, Villivakkam, New Avadi Road, among others.

Metrowater officials said the land was transferred to the water agency in 1978. The vacant land is essential for the construction of additional conduit lines, considered to be the backbone of the city's water distribution network, to meet growing drinking water demands in the coming years. To protect the lands, Metrowater has started earmarking boundaries of the three conduits and clearing encroachments in phases. Conduit line-I's alignment has been demarcated for 536 m, after 10 encroachments were removed in Surapet. Demarcation of boundaries of the two other lines in Surapet will also be carried out.

Metrowater is in the process of evicting commercial encroachments along with the Special Tahsildar, Madhavaram taluk, and fencing off the portions of lands retrieved. It had recently cleared 10 encroachments on Water Canal Road in Korattur and in Thathankuppam. It is also involved in fencing off portions of land and building compound walls in Surapet and Puthagaram.

Notices have been issued to 12 more commercial structures on R.K. Link Road in Thanthankuppam. Officials noted that several residential colonies have developed and unauthorised temporary roads have formed over conduit lands, particularly on Water Canal Road. Besides dumping of debris, the lands are being used for various infrastructure works.

Plea to Establish Common Effluent Treatment Plant at Tamil Nadu's Perundurai SIPCOT

Members of Perundurai SIPCOT Affected People Welfare Association have urged the state government to establish a common effluent treatment plant (CETP) at Perundurai SIPCOT and reuse the treated water for industrial purposes.

A petition was submitted by the association coordinator S. Chinnasamy to Minister for Environment and Climate Change Siva V. Meyyanathan and Minister for Housing and Urban Development S. Muthusamy during their visit to the industrial estate.

The petition said that the industries on SIPCOT premises polluted land, water and air, thereby affecting residents of many villages in the area. Based on complaints lodged to the district administration and Tamil Nadu Pollution Control Board (TNPCB), various teams inspected the factories but the reports were not made public. The National Geophysical Research Institute (NGRI) in Hyderabad was appointed to study the pollution of groundwater in the area, the petition said and wanted necessary action taken based on the report.

The petition claimed that effluents discharged by the industries into Nalla Canal entered Punjai Palatholuvu Lake that spread across 400 acres. "The discharge must be stopped immediately and steps should be taken on a war-footing to establish a CETP at SIPCOT," the petition said. The petition also wanted the contaminated water in borewells to be processed and used for industrial purposes, until which, the supply of Cauvery River water should be stopped.

The other demands included disposing of 75,000 tonnes of sludge dumped on the premises; ban on use of coal as fuel in industries and use of corporate social responsibility funds of the industries to provide basic amenities to affected people.

The Ministers told the association members that steps were taken to establish a CETP on the premises with a capacity to process 20 lakh litres at a cost of Rs 40 crore.



NOW
AT YOUR
FINGERTIPS...



DIGITAL ISSUES ARE
AVAILABLE ON YOUR
SMART PHONES

READ YOUR FREE COPY
NOW!

LEARN MORE:
www.eawater.com

DAFTECH

Floatcell
Dissolved Air Flotation
Clarifier



The most compact
Dissolved Air Flotation Clarifier
with internal overflow weir

- ▶ Save all applications in Pulp and Paper
- ▶ Primary treatment of industrial and municipal effluents
- ▶ Revamp of overloaded activated sludge systems
- ▶ Promoted by people with over 30 years of experience in the DAF process

For further information contact :

DAFTECH ENGINEERS PVT LTD

Saidpura, Barwala Road,
Industrial Park Block B
Derabassi 140 507 Punjab

M: +91 9814127804
mail@daftechindia.com

www.daftechindia.com

VMC Raises Awareness on Drinking Water Management Through 'Water Diwali' Programme

An innovative 'Water Diwali' programme was organised by the engineering department of the Vijayawada Municipal Corporation (VMC) on Wednesday. The event aimed to focus on drinking water management on the occasion of Diwali, symbolising the dispelling of darkness and the illumination of lights.

It was organised under the joint auspices of MEPMA and VMC as per the instructions of the Union Ministry of Urban Development and Housing at KL Rao Head Water Works in Bhavanipuram. As many as 50 Amrit Mitras selected from self-help groups were sensitised to the need to conserve drinking water sources. The civic body officials explained the process of water purification to Amrit Mitras who visited the filter bed. Glasses and water bottles were provided to the Development of Women and Children in Rural Areas (DWCRA) group members.



Narayana Murthy, executive engineer of VMC, stated that they are providing drinking water to 14 lakh people in the city. He mentioned that due to various factors like wasteful disposal of water in drainage systems and a lack of recycling, water reserves, and groundwater are depleting, and people are falling ill due to stagnant water. He urged everyone to clean the water reservoirs at least once a week.

Chhapra Likely to Get Sewage Treatment Plant by February 2024

Residents of Chhapra in Saran district are likely to get a New Year gift in the form of a Rs 244-crore sewage treatment plant. About 97% of work on the plant, being constructed by the urban development department under 'Namami Gange Programme', has been completed. The plant is likely to be handed over to the Chhapra Municipal Corporation by February next year.

The project, launched in 2020, was expected to be completed in June this year.

However, it got delayed due to some technical problems. The construction firm has been given the responsibility to maintain the plant for a period of 15 years.

Santosh Kumar Bhatt, project director of Bihar Urban Infrastructure Development Corporation, said the project would benefit at least six lakh people. "Under the project, dirty drain water will be diverted to the intermediate pumping station through a pipeline. From there, the water will go to the main pumping station. After treatment, the water will be used for other purposes," he added.

The main pumping station has been set up at Sherpur village. It has seven intermediate pumping stations.

Mawphlang's sludge woes set to decrease with new treatment plant

Rs 15 crore has been sanctioned to create an onsite sludge management treatment plant in Mawphlang, Public Health Engineering Minister Marcuise Marak said today.

The minister's response comes at a time when the residents of Wahlyngkien village in the Mawphlang area are facing the ruination of their crops and aquatic life in their streams due to sludge released from the existing water treatment plant that supplies Shillong with much of its drinking water.

Despite years of complaints raised by the residents, there has been no positive outcome. Following their meeting with the minister, Arbistar Lyngdoh, Rangbah Shnong of Wahlyngkien Mawphlang spoke to reporters about the price that residents have had to pay for providing Shillong with water.

"The aquatic life is dead, and even paddy fields are not suitable for agricultural purposes. We have raised this issue in the past with former PHE ministers, but there has been no positive outcome," Lyngdoh said. "This time, we have apprised the present minister. If the discussion that we had today is not fruitful, then we will take another course of action. We will even approach the court or the NGT (National Green Tribunal) if needed."

Meanwhile, Marak acknowledged that he had witnessed firsthand the sludge being released into the nearby stream during his recent visit to the plant. He stated that the department is taking care of the matter.

The sanction of Rs 15 crore has been approved for the sludge management project, for which a tender will be floated very soon, and the new plant will be set up by January or February next year.

iPUMPNET: Unveiled by IT & BT Minister of Karnataka



Mr. Priyank Kharge, Hon'ble IT and BT Minister, Govt. of Karnataka unveiled the iPUMPNET, an IIoT-enabled digital solution developed by Pump Academy Private Limited during the 26th edition of the Bengaluru Tech Summit on 30th November 2023. As per the program, The Karnataka government unveiled 35 "ground-breaking" products and solutions developed by start-ups from various sectors including IT, Agri-Tech, Med-Tech, Healthcare, Clean-Tech, Artificial Intelligence (AI), Deep Tech, Blockchain, Cyber security and Environment Tech.

The iPUMPNET that empowers water utilities and industries with advanced technology driven solutions was also unveiled as the leading water technology solution. The innovative product helps them to operate their pumping systems more efficiently, cost-effectively, and sustainably. iPUMPNET provides a transformative solution that harnesses the potential of digital technology to optimize pumping systems like never before. Its real-time monitoring, predictive maintenance capabilities, energy efficiency insights, and seamless integration make it an invaluable tool for water utilities and industries seeking to enhance their operations while reducing environmental impact by minimizing energy consumption and carbon footprint.



Some of the significant benefits of implementing iPUMPNET in pumping stations could be:

- It can improve operational efficiency of pumping station upto 35%, reduce energy consumption upto 25%, reduce the life cycle cost (LCC) of upto 45%, and extend the lifespan of pumping systems upto 50%.
- It is equipped with features that swiftly detect faults or anomalies, allowing for prompt troubleshooting and resolution, thus practically eliminating unscheduled breakdowns and maintenance.
- It allows for remote control and automation of pumping station operations, reducing the need for physical intervention and enhancing operational efficiency.
- The robust platform of iPUMPNET gathers and analyzes data, providing valuable insights that can support informed decision-making and drive operational improvements.
- It helps water utilities optimize energy usage in pumping operations, estimated that almost 5 GW of energy could be saved per annum if iPUMPNET is implemented across all water pumping stations in India.
- Through improved operational efficiency and energy optimization, iPUMPNET contributes to reduced environmental impact, significantly reducing the carbon footprints of pumping stations, estimated to save almost 3.06 million tonnes of carbon emission annually, if implemented across all water pumping stations in India.
- The return on investment for optimization will happen normally within a year.

In essence, iPUMPNET is a powerful tool that empowers water utilities with advanced technology-driven solutions, enabling them to operate more efficiently, cost-effectively, and sustainably. By harnessing the capabilities of the Industrial Internet of Things (IIoT), Artificial Intelligence (AI), and Data Analytics, iPUMPNET empowers industries to achieve unprecedented levels of efficiency, reliability, and sustainability in their operations.

Cabinet Committee on Economic Affairs approves inclusion of Jamrani Dam Multipurpose Project of Uttarakhand

Cabinet Committee on Economic Affairs approves inclusion of Jamrani Dam Multipurpose Project of Uttarakhand under Pradhan Mantri Krishi Sinchayee Yojana-Accelerated Irrigation Benefit Programme (PMKSY-AIBP).

Central assistance in the proportion 90 (centre): 10 (state) for the balance works components of the project under PMKSY-AIBP.

Estimated cost of Project is Rs.2,584.10crore, including Rs.1,557.18crore central assistance to Uttarakhand. Scheduled Completion of the Project is March, 2028. Additional irrigation of 57 thousand hectare in Nainital & Udham Singh Nagar districts of Uttarakhand, Rampur & Bareilly districts in Uttar Pradesh.

In addition, 42.70 million cubic metre (MCM) of drinking water to Haldwani and nearby areas benefitting more than 10.65 lakh population.

The Cabinet Committee on Economic Affairs (CCEA) chaired by the Prime Minister Shri Narendra Modi, has approved inclusion of Jamrani Dam Multipurpose Project of Uttarakhand under Pradhan Mantri Krishi Sinchayee Yojana-Accelerated Irrigation Benefit Programme (PMKSY-AIBP) of Department of Water Resources, River Development and Ganga Rejuvenation.

The CCEA has approved central support of Rs.1,557.18 crore to Uttarakhand for completion of the project with estimated cost of Rs.2,584.10 crore by March, 2028. The project envisages construction of a dam near Jamrani village across river Gola, a tributary of river Ram Ganga, in Nainital district of Uttarakhand. The dam would feed the existing Gola barrage, through its 40.5 km length of canal system and 244 km long canal system, which was completed in 1981.

The project envisages additional irrigation of 57,065 ha (9,458 ha in Uttarakhand and 47,607 ha in Uttar Pradesh) in Nainital & Udham Singh Nagar districts of Uttarakhand, and Rampur & Bareilly districts in Uttar Pradesh. Apart from construction of two new feeder canals, 207 km of existing canals are to be renovated and 278 km pucca field channels are also to be taken up under the project. In addition, the project also envisages hydro power generation of 14 MW, as well as provision of 42.70 million cubic metre (MCM) of drinking water to Haldwani and nearby areas benefitting more than 10.65 lakh population.

A substantial part of irrigation benefits of the project would flow to the neighbouring state of Uttar Pradesh, and cost/ benefit sharing between the two States is to be done as per an MoU signed in 2017. However, drinking water and power benefits shall be available entirely to Uttarakhand.



Background:

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was launched during the year 2015-16, with an aim to enhance physical access of water on farm and expand cultivable area under assured irrigation, improve on-farm water use efficiency, introduce sustainable water conservation practices, etc. Government of India has approved implementation of PMKSY during 2021-26 with an overall outlay of Rs.93,068.56 crore (central assistance of Rs. 37,454 crore). Accelerated Irrigation Benefits Programme (AIBP) component of PMKSY is for creation of irrigation potential through major and medium irrigation projects. So far 53 projects have been completed under PMKSY-AIBP and additional irrigation potential of 25.14 lakh hectare has been created. Six projects have been included after AIBP component of PMKSY 2.0 since 2021-22. Jamrani Dam Multipurpose Project is seventh project to be included in the list.

Andhra Pradesh to Release Water Once a Week for Standing Crops in Krishna Delta

Anticipating average rainfall, the state government kickstarted kharif season by releasing water from Prakasam barrage in the very first week of June. Paddy planting has been completed in about 10 lakh acres by July. "Sufficient water has been supplied to Ayakattu from Prakasam barrage. Water is being taken from the Pattiseema lifting scheme and Pulichintala project due to the lack of flow in the Krishna river," said a senior irrigation official.



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

According to officials, about 35.93 tmc ft water from the Pulichintala project was released to meet Krishna delta needs while another 29.88 tmc ft of water was drawn from the Pattiseema scheme. About 20 tmc ft water was supplied from inflows to Krishna river utilising the flood flows from Munneru, Paleru and Keesara.

The chief minister has reviewed the situation with the officials of the water resources and agriculture departments from time to time and prepared a contingency plan, the irrigation minister added.

He explained that the government has made a necessary plan to protect the crops planted by the farmers and accordingly the water in the Pulichintala project and the water from Pattiseema has been used very carefully in a balanced manner.

The Pulichintala project actually has almost its full capacity of water at the beginning of the season. In the initial phase, about 18 tmc of water was released for the crops of Krishna delta in order to utilise Godavari water for its own delta needs. Subsequently, Godavari water was drawn through Pattiseema scheme and saved remaining 20 tmc ft water in Pulichintala project. Water from Pattiseema was utilised till the end of July thanks to the sufficient inflows to Godavari.



Treatment Plant to Clean Villivakkam Lake to be Built

The Chennai Metropolitan Water Supply and Sewerage Board, will be constructing a modular tertiary treatment reverse osmosis plant of 5 MLD capacity, worth Rs17.6 crore, as part of the eco-restoration of the Villivakkam Lake. The tender process is over, and the treatment plant construction will begin in a month, said a Metrowater official.

The treatment water will work similar to the Nesapakkam tertiary treatment reverse osmosis plant.



Sewage from the Villivakkam sewage pumping station will be taken to the plant where the wastewater goes through three treatments ultrafiltration, reverse osmosis and ozonation. Then, the treated water will be sent to Villivakkam Lake.

“When there is no adequate sewerage infrastructure around a lake, it is better to intercept and divert it into a treatment plant and send the treated water back to the lake. Raw sewage is discharged into many water bodies across the city, and this is a positive move in arresting pollution of the lake,” said Darwin Annadurai, an environmental engineer with Eco Society India.

“This will also help in cleaning up the groundwater around the lake,” said the Metrowater official.





Malaysia International Water Convention 2023

5- 6 December 2023
Conference & Exhibition

7 December 2023
Workshops & Technical Tours
World Trade Centre Kuala Lumpur

Sustainability: Transforming Vision Into Action



Conference



Exhibition



Workshops



Dialogues



Lab Crawl



Networking
Reception



CEO Meetings



Technical
Tours

Register Now!



- Engaging panel discussions with renowned water experts
- 2-day conference with 70 luminary keynotes and parallel session speakers
- In-depth learning workshops
- Network with C-suite executives, decision makers, specifiers and users
- Exhibition on cutting-edge technologies and innovations



For enquiries, please contact

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



+603 6140 6666



+6012 3217345 or +6012 2315583



www.miwc.tech



info@protempgroup.com



[miwc.tech](https://www.facebook.com/miwc.tech)



[miwc2023](https://www.linkedin.com/company/miwc2023)

Organised by



Co-organised by



Supported by



Media Partners



GLOBAL W

DROPLETS

KHS Group launches new beer filtration concept based on NX Filtration membrane technology

KHS Group, one of the world's leading manufacturers of filling and packaging systems for the beverage and liquid food industries, launches a new beer membrane filtration concept, Innopro EcoClear, at the BrauBeviale 2023. The new system is based on membrane modules from NX Filtration, the global provider of breakthrough membrane filtration technology, offering significant advantages in terms of superior quality, operational uptime and sustainability.

KHS Group is one of the leading players for the beverage and liquid food industries, offering products and services ranging from system solutions to filling and packaging. With the launch of its new membrane filtration Innopro EcoClear, it is further complementing its product offering. The KHS system is based on compact units consisting of six beer filtration modules each, a modular system that can easily be expanded to cater to all required capacities. It is operated in crossflow mode and enables a continuous operation, significantly improving operational uptime. In addition, the beer filtration membranes of NX Filtration offer strong advantages in terms of constant high quality and sustainability, reducing the consumption of energy, chemicals and water in the process.

An Innopro EcoClear system, based on 4 units with in total 48 filtration modules is prepared as the first customer project. In general, the new solution will be available for order from summer 2024 onwards.

Dr. Andreas Zeller, Head of product support (Process engineering department) at KHS Group comments: "We are proud to add the Innopro EcoClear system to our wide suite of offerings to the brewery industry. This system not only adds to a consistent high beer quality, but also provides significant advantages in terms of continuous production and sustainability. We are proud to be using NX Filtration's unique beer filtration membranes that drive these advantages for our customers."



India and Slovenia Reach an Agreement on Satellite Usage for River Basin Management

India and Slovenia have reached an agreement on space science technology and satellite usage for river basin management. The agreement focuses on cooperation in space science technology and satellite usage for river basin management.

The agreement was reached during the three-day 8th India Water Impact Summit hosted under the joint aegis of National Mission for Clean Ganga (NMCG) and Centre for Ganga River Basin Management and Studies (cGanga), IIT Kanpur, at Dr Ambedkar International Centre in New Delhi.

At the event, Union Minister Nitin Gadkari emphasised the importance of ecological initiatives, citing the availability of good experiments and technology. He outlined two significant philosophies for the future – conversion of knowledge into wealth and the conversion of waste into wealth.

The summit brought together scientific experts, stakeholders and government representatives to address the challenges and opportunities in the country's water sector. In the inaugural address, Gadkari also highlighted collaborative projects in Punjab, Haryana, and Uttar Pradesh, focusing on utilising crop residues to reduce pollution in Delhi. He provided examples, including the potential development of the Zuari river in Goa, emphasising the boost to tourism and revenue generation.

Speaking on the occasion, Debashree Mukherjee, Secretary, DoWR, RD & GR Ministry of Jal Shakti, urged the youth at the 8th IWIS to address India's dual challenges of floods in the north and water scarcity in the south. She emphasised the importance of developing modern methods for water collection and monitoring.

The second day of the summit concluded on November 24. The thematic sessions covered agricultural waste management, lifestyle and economics, and the use of digital tools for effective river monitoring. Officiating Director, IIT Kanpur, Professor S Ganesh while expressing enthusiasm about the summit's success said, "cGanga at IIT Kanpur has been undertaking rigorous initiatives to ensure responsible water management and conservation under the objectives of river science and river basin management. Our efforts demonstrate our commitment to environmental protection. The MoU signed with Slovenia is a significant step, and the summit's success is a reflection of the collective efforts toward advancing water management and environmental conservation."

Founding head of cGanga, Vinod Tare said, "The 8th India Water Impact Summit has not only nurtured significant partnerships but has also set the stage for innovative solutions. The MoU signed with Slovenia, focusing on space science technology and satellite utilization for river basin management, stands as a testament to our commitment. The 8th IWIS, under the aegis of NMCG & cGanga, shared the responsibility in addressing waterrelated challenges and solutions."

ATER NEWS

Brazil launches Ecological Transformation Plan

On December 1st, at COP28, the Government of Brazil launched its Ecological Transformation Plan in a presentation by the Finance Minister, Fernando Haddad. The event also included the participation of the Minister for Environment and Climate, Marina Silva; the President of the BRICS Bank and former President of Brazil, Dilma Rousseff; the President of the Brazilian Development Bank, Aloizio Mercadante; the President of the Inter-American Development Bank, Iñan Goldfajn; and the Secretary for Climate, Energy and Environment of the Ministry of Foreign Affairs, André Aranha Corrêa do Lago.

In his presentation, Minister Haddad stated that initial studies from the private sector indicate that ecological transformation could generate 7.5 to 10 million jobs across all sectors, with a focus on the bioeconomy, agriculture, and infrastructure segments, as well as income-generating opportunities. However, to realize this scenario, the same studies estimate that Brazil needs additional investments in the range of \$130 to \$160 billion per year over the next decade. The investments should occur mainly in infrastructure to promote adaptations, produce energy, enhance industrialization, and improve mobility.

Minister Haddad praised Brazil's ability to mobilize investment and create sustainable infrastructure through public investments. He cited national examples that make the country "a giant in renewable energy," highlighting the network of hydroelectric plants, the unified electrical system, ethanol production, and the role of Petrobras and other leading national companies in the research and development of biofuels. Citing examples of implementation measures, the minister referred to the creation of a regulated carbon market, the issuance of sustainable sovereign bonds, the definition of a national taxonomy focused on sustainability, and the revision of the Climate Fund. The initiatives aim to create conditions for a new wave of investments with the goal of concentrating industrial technologies, modernizing science, and qualifying the workforce nationally.

Advancements

"The Ecological Transformation Plan that I have the honor to present to you today aims to unite forces around a historic goal: to interrupt five centuries of extractivism and environmental destruction to position Brazil at the forefront of sustainable development," declared Minister Haddad.

Haddad announced advancements in key areas for the ecological transformation of the Brazilian economy, achieved by the current administration since the minister attended the COP in Egypt last year. One of them was the nearly 50% reduction in deforestation in the Amazon due to the reactivation of prevention and control actions in the biome.

The minister listed the recently approved Bills on green hydrogen and offshore wind energy generation by the National Congress as crucial sectors for the energy transition that hold enormous potential for the country. Brazil also revised the Nationally Determined Contribution (NDC) to achieve a 53% reduction in emission levels compared to the year 2005, a climate goal more ambitious than that of many developed countries.

DROPLETS

Freyr Energy to solar-power 2,000 homes in Kerala in 2024

After providing rooftop solar solutions to homes and businesses in 27 states, Freyr Energy, one of India's fastest-growing solar companies, is making headway in Kerala, with plans to install solar panels in 2,000 households in the coming year. Installing Solar panels can reduce electricity bills by up to 90%, and solar power is a clean and a renewable energy source, which contributes to environmental sustainability.

Freyr Energy plans to encourage the use of solar power in Kerala dovetail with the Kerala State Electricity Board's (KSEB) vision to install solar panels in 800 homes by the end of 2023. By the end of 2022, the Board had installed solar panels in 400 homes in the coastal state.

Along with its efficient and affordable solar systems, Freyr Energy's, combines technology and consumer financing (up to 5-year loans), allowing retail customers to transition seamlessly to solar power, reducing customer's electricity bills and combat the adverse effects of climate change in 'God's Own Country'. The installations are customized based on the requirements of individual homes or housing societies.

A homeowner can download SunPro+ app that is available on iOS & Android app store, and instantly get pricing and financing options and start their solar journey. This innovative platform connects customers directly with Freyr's in-house solar experts, streamlining the entire process from customized quotes to order placement and performance monitoring of solar systems. Alongside providing swift, high quality and professional installation services, Freyr Energy offers round-the-clock after-sales support to ensure a seamless experience for all customers.

"The advantages offered by Freyr Energy for the installation of solar panels in households and businesses are manifold — apart from a 90% reduction in electricity bills and carbon emissions, there is an assured return on investment of 25-30% and a 25-year lifespan with minimal upkeep. With the increasing electricity rates over the years, now home and business owners can protect their monthly expenditure by a one-time investment in to owning a solar system. We are confident about Kerala's market opportunity and are well positioned to make a substantial impact." explained Radhika Choudary, Co-founder of Freyr Energy.

Kerala is one of India's most technologically advanced states and has invested significantly in producing renewable energy over the last 10 years due to its favorable geographical location. Kerala's sustainable edge in the energy production industry is exemplified by the energy initiatives at the state's Cochin International Airport, India's first airport to run solely on solar energy through 46,000 solar panels. Kerala also has a large floating solar project in the backwaters of Kayamkulam that generates 101.6 megawatts (MW) of electricity.

According to the Power System Statistics Report, 2022-23, released by the KSEB there has been a three-fold increase in renewable energy production in Kerala over the last decade. In the last fiscal, Kerala's net solar production was 856.63 MU (Million Units). The current demand in Kerala for electricity has already crossed 100 million units as per a recent survey, which also hints at a further growing demand.

"The Ecological Transformation Plan is an evolutionary process, just like the challenge of climate change. It will seek to adapt to new paradigms and develop public policies to address not only past problems but also those of the future," added Haddad, who classified the plan as a realistic yet ambitious model for the reinvention of Brazil.

Hydroleap Partners With IX Technology to Improve Water Management in Data Centres Across Singapore, Malaysia and Vietnam

In a progressive move towards sustainable water management and reduced environmental impact from data centres, the water technology company Hydroleap has announced a strategic partnership with IX Technology (IXT), a Singapore-based provider of data centre mechanical and electrical (M&E) infrastructure solutions.

This collaboration is aimed at transforming water management in cooling towers, allowing businesses in the data centre industry to reduce water consumption, lower chemical use, bring down the carbon footprint and improve regulatory compliance.

IXT will promote Hydroleap's patented Electro-Oxidation Technology (HL-EO) that is being used by major blue-chip data centre companies and CapitaLand, to more data centre and semiconductor companies in Singapore, Malaysia and Vietnam.

The data centre industry plays a crucial role in supporting the digital infrastructure of the modern world. However, with their intensive water consumption and discharges, the sector faces growing pressure to adopt eco-friendly practices and comply with ESG requirements.

There are a bunch of factors putting Singapore in a vulnerable spot in this regard. In a 2022 global market comparison report, Singapore was ranked as the number two most desirable market for data Centre facilities in the world. Singapore's industrial sector utilises 55% of the country's water including data centres, which is expected to rise to 70% by 2060.

Data centres use significant amounts of energy and water resources to fuel power-hungry servers, yet at the same time, demand for data Centre services continues to rise. OpenAI's ChatGPT consumes 500 ml of water for every 5 to 50 prompts it answers according to a researcher at the University of California.

As generative AI adoption picks up, this water usage is expected to rise further.



In the light of these factors, the partnership between Hydroleap and IXT promotes a more sustainable future for data centre operations.

"Efficient cooling methods with lowered water consumption can play an important role in sustainability. We are thrilled to join forces with IXT to support more data centre companies through our sustainable electrochemical solutions. By combining our teams, we aim to empower data centre businesses to be more sustainable in their water consumption." said Dr. Mohammad (Moh) Sherfatmand, founder and Chief Executive Officer of Hydroleap.

"This partnership marks a significant milestone in our journey towards building more sustainable data centre facilities. Together with Hydroleap, we aim to set a new standard for water treatment and carbon reduction for data centres." said Steven Lee, Founder and Managing Director of IXT.

Powered by cutting edge technologies, Hydroleap is revolutionizing the way industrial wastewater is treated across multiple industries including data centres, food and beverage and palm oil, through solutions that are automated, robust, cost-effective, and environmentally friendly. Driven by a team of specialized R&D experts behind the scenes, Hydroleap's unique electrochemical techniques can reduce up to 95% pollutants present in industrial wastewater and lessen the water discharges by 70% in the cooling towers.



STANDOUT OUT FROM THE CROWD.

Share your Success Stories, Technology and Solutions in the most Premium Annual Issue of EverythingAboutWater Magazine.

Book your ad space NOW

For further details, please Write to enquiry@eawater.com or Call +91 85889 11033

For case study submission, write to editor@eawater.com

GLOBAL WATER NEWS

November 2023

World Bank Support to Accelerate Access to Safe Water Supply and Sanitation in Cambodia

The World Bank has approved a \$163 million project to support Cambodia's efforts to strengthen water supply and sanitation services in four provinces, benefiting over 175,000 people.

While Cambodia has made substantial progress on increasing access to improved water supply and sanitation, further efforts are needed to achieve the country's targets and meet the UN's Sustainable Development Goal (SDG) 6 of clean water and sanitation for all by 2030. In 2022, less than a third of Cambodians had access to a safely managed water supply, and just over a third used safely managed sanitation.



"Access to safe water supply and sanitation is a fundamental human right," said Maryam Salim, World Bank Country Manager for Cambodia. "This support will help the government build a strong foundation for making these essential services available to all Cambodians and will bring rapid benefits to women and people in poor and rural areas, which are currently particularly underserved."

The six-year Water Supply and Sanitation Acceleration Project will support government actions to increase access to safe water supply and sanitation, improve the operation and maintenance of existing systems, and ensure the sustainability of services. The project includes an activity to maximise finance for development, working with the private operators that provide over half of all piped water connections in Cambodia to mobilize another \$17.6 million in private funding to expand water supply services.

"This project will help the government implement its vision and overall development strategy, and we are committed to ensuring sustainable growth in the sector and to achieving SDG 6," said Hem Vandy, Minister of Industry, Science, Technology & Innovation.

The Ministry of Industry, Science, Technology & Innovation will implement water supply activities and the Ministry of Public Works and Transport will implement urban sanitation activities under the project. The targeted provinces are Battambang, Pursat, Mondul Kiri and Kandal.

Yorkshire Water pays record £1 million civil sanction

The company breached its environmental permit with an unauthorised sewage discharge from Hookstone Road combined sewer overflow, which polluted Hookstone Beck.

It submitted an Enforcement Undertaking to the Environment Agency proposing a charitable donation totalling £1m which is the largest ever accepted by the Agency.

It has paid £500,000 to Yorkshire Wildlife Trust and £500,000 to Yorkshire Dales Rivers Trust. It has also completed a significant £1.85million sewer network upgrade in the area as part of the enforcement terms.

An Enforcement Undertaking is a voluntary offer made by companies or individuals to make amends for their offending, and usually includes a payment to an environmental charity to carry out environmental improvements in the local area.



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

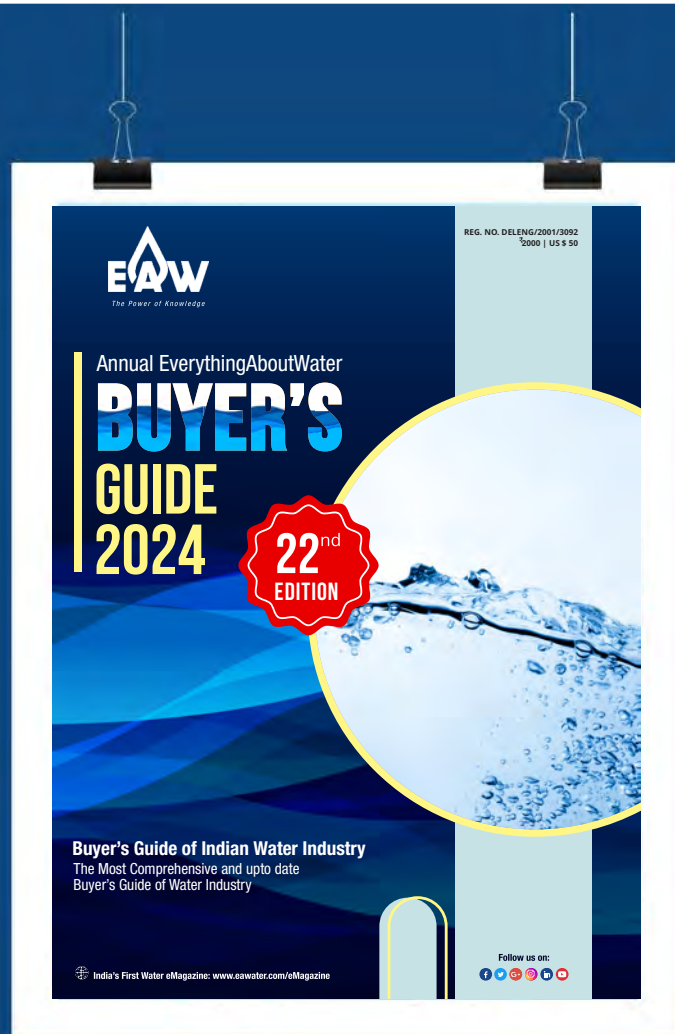
- » India's No. 1 annual buyer's guide for the last 19 years
- » Database of 5,000 water companies, 260 product categories in one buyer's guide
- » Total circulation of more than 55,000 across India
- » 10,000 complementary mailing on focused data
- » Covers all major suppliers in the water and wastewater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

A1/152, IGNOU Road, Neb Sarai,
New Delhi 110 068, INDIA
M.: +91 96500 59996
E: enquiry@eawater.com

www.eawater.com

Combined sewer overflow was blocked

Hookstone Road combined sewer overflow has an environmental permit which allows a discharge into the beck when the storm sewage facility is full due to rainfall or snow melt.

On 31 August 2016 the Environment Agency received a report of pollution in Hookstone Beck. Investigating officers traced it to the overflow at Hookstone Road, which had blocked and not alerted Yorkshire Water due to faulty telemetry equipment.

The investigation found that almost 1,500 fish had been killed and water quality affected for 2.5km downstream. A series of further blockages and discharges took place in the following months.

A detailed Environment Agency investigation was undertaken, this included the use of devices called sondes in the river to measure the impact of ammonia and an assessment of Event Duration Monitoring data that revealed the company was in breach of its environmental permit.

As part of the Enforcement Undertaking requirements **Yorkshire Water has already carried out a significant £1.85m improvement and rebuilding project to the overflow and surrounding sewer network** to bring it back into compliance with its environmental permit.

Significant civil sanction will be invested back into the local area Claire Barrow, Environment Agency Area Environment Manager in Yorkshire, said:

We always consider enforcement options on a case by case basis and Enforcement Undertakings allow companies to put right what went wrong and contribute to environmental improvements and outcomes.

This significant £1 million civil sanction will be invested back into the local area to enhance the environment for people and wildlife.

The Environment Agency investigation also led to significant improvements to the sewer network in this area to prevent repeat incidents and ensure future compliance with environmental requirements.

Water Minister Robbie Moore said:

This record penalty paid by Yorkshire Water demonstrates that those who damage our natural environment will be held to account.

Our Plan for Water is all about delivering more investment, stronger regulation and tougher enforcement right across the water sector - and this penalty for Yorkshire Water demonstrates that we will take robust action when required.

Our Plan includes scrapping the cap on civil penalties by introducing unlimited fines and significantly broadening their scope to target a much wider range of offences – from breaches of storm overflow permits to the reckless disposal of hazardous waste.

Yorkshire Wildlife Trust will use the payment in North Yorkshire for new and improved homes for wildlife, mainly on their wetland reserves. This includes reprofiling Ripon City Wetlands to create muddy shores for wading birds, safe breeding islands and removing invasive plants, as well as replacing equipment. Habitat improvements on the River Tutt at Staveley nature reserve will also help to store flood water, protecting communities downstream.

Those that pollute the environment will soon face unlimited penalties under new legislation being brought forward by the government. The current limit of variable monetary penalties that the Environment Agency can impose directly on operators will be lifted, following a government consultation which received widespread public support.

This will offer regulators a more efficient method of enforcement than lengthy and costly criminal prosecutions – although the most serious cases will continue to be taken through criminal proceedings.

Surfers Against Sewage's (SAS) Report finds popular sites for bathing in England fail to meet minimum safety requirements



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**

**INDUSTRIAL WATER
MANAGEMENT**

INDUSTRY SPOTLIGHT:

Lab & Field Instruments, Filters & Filter Components,
Activated Carbon, RO System, Submersible Pumps

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

A new report released reveals that multiple popular inland swimming sites in England are unsafe for water users. 40 locations were sampled weekly by volunteer citizen scientists throughout the 2023 bathing season. 20 were popular sites for bathing, and 20 were upstream of a nearby sewage overflow associated with the swimming spots.

Of the 40 locations, SAS found that 24 would be deemed 'poor' quality were they designated bathing waters, as per Environment Agency methodology. Four out of 20 bathing sites showed a clear decrease in water quality from locations upstream to downstream of a sewage overflow. The data is released just weeks after the Government announced its intention to diverge from the EU's standards for monitoring water quality in England.

Surfers Against Sewage's (SAS) annual water quality report explores the shocking state of UK bathing waters in a year when untreated sewage ***was discharged over 399,864 times into UK waterways – the equivalent of more than 1,000 discharge events every day.*** The report notes that the majority of overflows in Scotland and Northern Ireland go unreported, meaning this figure is likely a significant underestimate of the true frequency of sewage discharges into the UK's rivers and seas. In Scotland only 4% of sewage overflows are monitored whilst Northern Ireland Water admits it lacks the ability to record or measure when sewage discharges occur.

Meanwhile, SAS have unearthed documents that indicate that Welsh Water have used emergency overflows permitted only in the case of catastrophic events – to release sewage into a designated bathing water multiple times over the last two years. The Gwbert Emergency Overflow, which impacts the designated bathing water of Poppit Sands, discharged 24 times in the same number of months, indicating a clear breach of permit.

Sicknesses in the UK due to sewage pollution reported to SAS reached 1,924 cases in the last year – nearly triple the number of cases reported a year prior

Giles Bristow, CEO of Surfers Against Sewage, said: "Yet again, our annual water quality report reveals the complacency and disregard of governments, water companies and regulators towards the health of rivers and coastlines in the UK – and by extension people's health. How much do our blue spaces need to suffocate in sewage before those we elect to keep us safe and protect our environment wake up and smell the shit?"

Sicknesses in the UK due to sewage pollution reported to SAS reached 1,924 cases in the last year – nearly triple the number of cases reported a year prior. These cases resulted in 1,987 days taken off sick, which translates to 5 years of work lost to ill health caused by polluted waters. Many of these sicknesses have led to hospitalisation, events cancelled, earnings lost, and businesses closed. As this data just relates to cases reported to SAS, these numbers are likely only the tip of the iceberg.

This year Reuben Santer, a physics teacher at a secondary school in Exeter, was forced to stop working after contracting labyrinthitis (an inner ear infection) following a surf at Saunton Beach in Devon. Doctors confirmed the infection was due to a virus or bacteria entering Santer's ear during his surf. The infection later developed into an incurable condition called Ménière's disease.

Reuben Santer said: "I have never been anxious about anything in my life, but this experience has definitely made me worried that symptoms will come back when driving, surfing, at work, or in any situation where vertigo could be dangerous."

The report also highlights the impact that sewage is having on independent businesses, and the livelihoods of those who run them.

Steve Crawford, who until recently ran a surf shop in Scarborough's South Bay, said: "My shop has been closed all summer. From the 6th May the RNLI put the red flags up as the beach was at a poor quality here in Scarborough. A week later the council took all the flags down and put warning signs up. I decided at that point that I can't take people surfing."

"I couldn't carry out any lessons on the beach when the lifeguards themselves think it's unfit to go in. My income stopped dead on the 6th May. It's only because my dad died last year that I'm surviving now because I was left some money. If it wasn't for that I would be out on the street."

This year's water quality report is designed to empower communities across the UK to put pressure on their local representatives in the lead-up to a general election in 2024. In the last year, thousands have joined the protest for safer rivers and seas, with over 45,000 emails sent via SAS's free Safer Seas and Rivers Service app to MPs and water company CEOs, calling for action to protect the UK's waterways from further pollution.

This year SAS developed the End Sewage Pollution Manifesto, which sets out the policies needed to clean up our rivers and seas. Created in collaboration with environmental charities, sports governing bodies and community groups around the UK, the manifesto suggests a five-point plan to make the UK's waters healthy and safe to enjoy again:

- Enforce the law and regulations
- Stop pollution for profit
- Prioritise high-risk pollution events
- Empower a nature-led approach to tackling sewage pollution
- Reveal the truth by ensuring UK-wide transparency on sewage pollution.

California's Turlock and Ceres Residents Get Treated River Water After 30 Years



Turlock and Ceres residents are finally drinking treated water from the Tuolumne River. Officials gathered at the plant, which reduces the cities' reliance on wells. Hefty rate increases starting in 2018 are covering most of the \$220 million cost. The ribbon-cutting came after 30-plus years of off-and-on discussion about the project.

"High-quality drinking water is now flowing to our communities that are so much in need of a long-term solution to the declining groundwater levels and increasingly stringent water-quality regulations," Ceres Mayor Javier Lopez said. The Turlock Irrigation District is selling part of its river supply to the plant, just east of the Geer Road Bridge. According to advocates, less pumping by the cities will mean a more abundant aquifer for farm and urban users alike.

To start, Ceres expects to meet about a third of its demand from the plant. Its first water ran through a pipeline along Hatch Road. Turlock plans to get about half of its water from the Tuolumne at first. Deliveries began this afternoon through a pipeline mostly along Berkeley Avenue.

Plant General Manager Christopher Fisher said customers should expect a somewhat "softer" taste as the river and well sources are blended. That refers to trace minerals in the water. The plant can produce 15 million gallons of water daily. Future funding could bring the capacity to 45 million. Nearby cities could get their own shares of the water if they pay some of the cost.

Jordan Signs Loan Deals With Germany to Support Water Sector

Jordan signed financing agreements worth 125 million Euros (about US\$134 million) with the German Development Bank (KfW) to fund two water projects in the country.

The projects aim to achieve optimal use of water resources in Jordan to ensure the sustainable availability of water supplies, Jordan's Ministry of Planning and International Cooperation said in a statement on Tuesday.

The agreements were signed following a meeting in Amman between Jordan's Minister of Planning and International Cooperation Zeina Toukan and German Federal Minister for Economic Cooperation and Development Svenja Schulze.

During the meeting, Toukan praised the strategic partnership that unites the two countries and the importance of the continued support that Germany provides in various development areas, most notably the water and sanitation, education, and vocational training sectors.



The German minister lauded the strategic partnership between Jordan and Germany, expressing the German government's appreciation for all the efforts Jordan made in hosting refugees.

Aalto University Develops Digital Twin To Optimize Carbon Balance In Wastewater Treatment

Energy consumption reduction and greenhouse gas emissions mitigation are among the top priorities at many wastewater treatment plants regarding upcoming tightening changes in legislation. Some water pollutants removal, especially nitrogen, requires energy-intensive aeration and a comprehensive operation to minimize the formation of highly intensive greenhouse gas (GHG) – nitrous oxide emitted by the biological nitrogen removal process. While wastewater treatment operation performed by water utility already meets current requirements established by the EU Commission, new techniques and approaches to implementation are required to mitigate energy consumption and greenhouse gas emissions.

Studies on GHG emissions hotspots and process control have been performed within the collaboration of Aalto University Water and Environmental Engineering researchers and Helsinki Region Environmental Services Authority HSY. Based on this collaboration, a new project, DIGICARBA, was started in 2023 to create a digital treatment plant tool to help wastewater treatment operators in process control and optimization.

The proposed digital tool will have a wastewater treatment process model connected to continuous data transmission from the Helsinki wastewater treatment plant to produce predictive simulations. In this case, operators will be able to see the impact of different treatment process changes and decide on the most suitable one with the lowest carbon footprint, energy consumption, and best effluent quality. Also, the developed tool can be used for new operators' training', says Ksenija Golovko, a doctoral researcher who works with the project.

The potential digital tool could be used globally as many treatment plants will require carbon balance optimizations in the near future. Therefore, a market potential study will also be introduced to develop the technology further.

Business Finland ("Decarbonized Cities" program) is funding the DIGICARBA project until the end of 2025. The project will be supported by collaboration with Helsinki Region Environmental Services Authority HSY, FCG Finnish Consulting Group Oy, Valmet Oy, Brighthouse Intelligence Oy, and Mittausguru Oy. The Water and Environmental Engineering Research group will be involved from the Aalto University side, offering Master's students an opportunity to participate in the project for the thesis work and helping to promote wastewater treatment plants' path to carbon neutrality.

Saudi Fund Seals \$100m Loan Deal to Propel Argentina's Water Sector

Argentina's water sector is set to get a boost, thanks to a \$100 million deal signed with the Saudi Fund for Development.

The soft loan agreement, which marks the fund's first presence in the South American country aims to contribute to financing the first phase of the joint water canal construction project in Santa Fe and Cordoba, according to a statement. This initiative aligns with SFD's commitment to promote sustainable development across Latin America to enhance living standards and contribute toward socio-economic prosperity. It will also support the growing demand for portable water in the two provinces, contributing to the country's economic resilience.

In addition, it aligns well with the UN Sustainable Development Goals, specifically SDG 3, Good Health and Well-being, and SDG 6, Clean Water and Sanitation.

"We are proud to play a role in this important initiative and look forward to continuing to support projects that improve access to potable water in developing countries and which help to positively impact the lives of many," said the CEO of the Saudi Fund for Development, Sultan bin Abdulrahman Al-Marshad.

He further emphasised that access to safe water, sanitation, and hygiene stands as a fundamental human necessity for health and well-being, highlighting that it helps to prevent a range of water-related diseases.

"This signing marks the beginning of a strong economic partnership between the SFD and Argentina, and we are grateful for the support that will help our development," noted the Cordoba Gov. Juan Schiaretti.

Meanwhile, the provincial governor of Santa Fe, Omar Perotti, said, "Today is an important day for Argentina, marking our first collaboration with SFD to establish an aqueduct that will change many lives for the better."

This agreement makes Argentina the 93rd country to benefit from the fund.

SFD has financed more than 750 development projects worth \$20 billion in over 90 countries. It works to assist developing nations by funding social and infrastructure projects.

It covers diverse fields, including transport, communications, agriculture and renewable energy, among other sectors.





WATER AND WASTEWATER RECYCLING AND DRINK TECHNOLOGY EVENT

10-12 JAN 2024

AUTO CLUSTER EXHIBITION CENTER, PUNE, INDIA

www.indiawatershow.com

Supported by



Knowledge Partner



Organized by



Call: 93632 35370

Email: info@indiawatershow.com

BALANCING URBAN GROWTH AND ADVANCING SUSTAINABLE INDUSTRIAL WATER MANAGEMENT AMIDST URBANIZATION

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

The intensifying focus on sustainable water management, prompted by water scarcity, growing populations, and environmental concerns, poses significant challenges. Urbanization and industrialization have exerted immense pressure on water resources, necessitating innovative solutions that strike a balance between water conservation and energy efficiency. In this landscape, industry leaders like Danfoss have taken the forefront in engineering solutions, revolutionizing urban and industrial sustainable water management. Their innovative technologies bridge the water-energy nexus, providing efficient solutions to optimize resource use and reduce environmental impact.

THE WATER-ENERGY NEXUS



Wastewater Treatment Illustration

Efforts to address the Water-Energy Nexus are not only crucial for operational efficiency and environmental stewardship but also for ensuring long-term viability in an era of growing global water scarcity and energy demand. Industries are actively engaging in sustainable practices that prioritize the efficient utilization of water and energy resources to drive economic growth while minimizing their ecological footprint. The interdependence of water and energy is undeniable. Water treatment and distribution, along with wastewater management, consume significant energy. Danfoss recognizes this critical relationship and provides game-changing concepts aimed at extending precious water and energy resources. By introducing energy-efficient solutions, from water desalination to irrigation and wastewater treatment, Danfoss aims to redefine the paradigms of water and energy sustainability.

ENERGY-EFFICIENT WATER SOLUTIONS

1. Water Desalination: Water desalination aids energy efficiency and sustainable water management in industries through advanced technologies like reverse osmosis (RO), reducing energy demands compared to traditional methods. Incorporating energy recovery devices and integrating renewable energy sources like solar or wind power minimizes carbon footprints.



Energy recovery device for medium to large SWRO applications

Co-locating desalination plants with industries optimizes energy use by utilizing waste heat. Integrated water management strategies, including recycling and conservation, alongside ongoing research for more efficient technologies, collectively enhance energy efficiency and promote sustainable water practices in industrial settings. Through reverse osmosis, Danfoss's desalination solutions optimize energy consumption, ensuring fresh water production without an excessive energy burden.

2. Irrigation: Irrigation enhances energy efficiency and industrial sustainable water management by employing precision techniques like drip irrigation, minimizing water wastage and reducing energy needed for distribution. Smart systems with sensors optimize water use based on real-time data, curbing over watering and lowering energy consumption.



New DST P140 Pressure Transmitter- Smart systems with sensors optimize water use based on real-time data

Efficient irrigation decreases overall water demand, indirectly reducing energy-intensive water supply processes. Energy-saving pumps and technologies in irrigation networks cut electricity usage. Reuse of treated wastewater conserves resources, decreasing reliance on freshwater sources and associated energy for treatment. Integrated practices, including water conservation and tailored crop selection, ensure sustainable water usage, benefitting industries and agriculture while minimizing environmental impact.

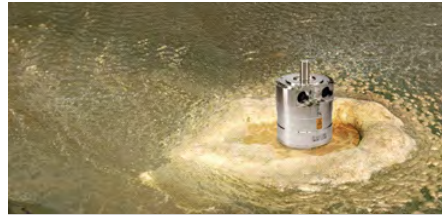
3. Wastewater Treatment: Wastewater treatment bolsters energy efficiency and industrial sustainable water management through diverse means. Advanced treatment plants harness biogas from wastewater, serving as a renewable energy source for heating and electricity. Enhanced treatment technologies like membrane bioreactors reduce energy consumption while optimizing pollutant removal.



Koyambedu Project in Chennai 22% reduction in energy consumption at wastewater treatment plant

Resource recovery from wastewater, including nutrients like phosphorus and nitrogen, aids in circular economy principles, reducing energy-intensive manufacturing. Biogas-powered combined heat and power systems maximize energy utilization. Implementation of energy-efficient equipment, cogeneration practices, and safe water reuse for non-potable purposes collectively elevate energy efficiency and sustainable water management in industrial settings. Danfoss's wastewater treatment solutions focus on energy reduction and optimized energy production, enabling municipalities to fuel the water cycle sustainably.

4. Water Pumps and Pressure Control: Water pumps and pressure control systems are pivotal in bolstering energy efficiency and fostering sustainable industrial water management. Upgrading to energy-efficient pumps with variable frequency drives optimizes motor speed, curbing energy use during lower demand periods. Intelligent control systems adjust pump operations based on real-time needs, minimizing energy wastage.



High-pressure pumps delivering up to 90% efficiency.

Precise pressure regulation in distribution networks mitigates leaks, conserving both water and the energy needed for conveyance. These systems ease integration of diverse water sources, reducing reliance on energy-intensive extraction methods. Overall, these technologies minimize energy consumption, prevent water loss, and promote a more sustainable and efficient industrial water management approach.

5. Drives for Various Applications: Drives, notably variable frequency drives (VFDs), wield a critical role in boosting energy efficiency and sustainability in industrial water management. Regulating motor speed as per demand, they curtail energy usage during lower requirements. By fine-tuning pump, blower, and mixer operations, drives heighten equipment efficiency, minimizing energy waste. Reduced maintenance needs prolong equipment life, fostering sustainability and cost savings.



Utilizing AC drives to control motor speeds in pumps, blowers, mixers, and dewatering processes improves performance, saves energy, and cuts costs. Drives optimize water treatment processes, conserving energy. Their adaptability ensures efficient operation amidst changing demands. Moreover, they facilitate the integration of renewable energy sources into water systems, promoting sustainable practices. Overall, drives play a pivotal role in conserving energy, optimizing performance, and sustaining efficient industrial water management.

ADVANCING URBAN AND INDUSTRIAL SUSTAINABILITY

1. Zero Liquid Discharge (ZLD) and Minimal Liquid Discharge (MLD):

ZLD and MLD technologies advance urban and industrial sustainability by conserving resources, notably water, through minimal liquid waste discharge. They prevent environmental contamination by treating wastewater and ensuring compliance with stringent regulations. With significant advancements in energy-efficient processes, these technologies reduce energy consumption by up to 75%. By minimizing waste leaving facilities, they contribute to sustainable waste management. Moreover, ZLD and MLD systems facilitate water reuse within industries, promoting a closed-loop system. Overall, these approaches effectively conserve resources, protect the environment, ensure compliance, and foster efficient water management in urban and industrial settings.

2. Energy-Neutral Water Cycle Management:



Energy-neutral water cycle management significantly advances urban and industrial sustainability by minimizing environmental impact through renewable energy adoption, curbing greenhouse gas emissions. This approach conserves resources by balancing energy needs within the water cycle, promoting long-term sustainability. It fosters a circular economy model by generating energy from water treatment processes, ensuring self-sufficiency and reducing reliance on external energy sources. Additionally, it enhances resilience during energy shortages and cuts operational costs, fostering economic sustainability. Overall, energy-neutral water cycle management stands as a pivotal strategy, combining environmental, economic, and resource conservation benefits for sustainable urban and industrial water management. By harnessing energy from wastewater treatment processes, Danfoss has led the transformation of wastewater plants into energy generators, covering energy needs for the entire water cycle.

3. Smart Digitization:

Smart digitization drives urban and industrial sustainability by optimizing resource utilization through IoT sensors and AI-driven systems. Real-time data enables informed decisions, minimizing waste and enhancing efficiency.



Smart digital solutions for Water Supply

These technologies aid in proactive measures, reducing operational inefficiencies and environmental impact. By detecting leaks, managing energy use, and preventing pollution, smart systems maintain ecological standards. Additionally, they bolster resilience against disruptions, offering rapid responses to water or energy shortages. Moreover, fostering innovation, digitization encourages sustainable practices, paving the way for advancements in urban and industrial sustainability.

4. Membrane-Based Processes: Membrane-based processes, such as reverse osmosis (RO) and filtration techniques, significantly advance urban and industrial water sustainability. They slash energy consumption by up to 75% compared to traditional thermal-based methods, reducing operational costs and environmental impact. These processes ensure high-quality treated water by efficiently removing contaminants, facilitating water reuse, and fostering a circular economy. Additionally, they minimize liquid waste discharge, aligning with sustainability goals and supporting environmentally responsible water management practices in industries and urban settings.

Overall, membrane-based processes stand as crucial solutions, balancing efficiency, water quality, and sustainable water management. Danfoss's shift from thermal-based to membrane-based water treatment processes has shown efficiency gains of up to 75%, significantly reducing energy consumption.



Reverse osmosis technology is increasingly used in wastewater treatment

By revolutionizing water treatment, distribution, and conservation, Danfoss has set a benchmark for industry-wide transformation towards a more water-secure and energy-efficient future.

The amalgamation of these technologies and sustainable practices in water management is essential for industries and urban areas striving for environmental stewardship. Solutions such as membrane-based processes, alongside smart digitization and energy-efficient approaches, play pivotal roles in advancing water sustainability. These technologies not only optimize resource utilization but also contribute to cost-effective operations, reduced environmental footprint, and enhanced resilience.

About the Author



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

Mr. Mandar Vaijanapurkar 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.



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



Special Designed For **STEEL FOUNDARIES COOLING TOWERS**

New/Repairs/Spares

Our 1500 Clients Worldwide in Steel Sector

PALTECH™ (36 YRS. Of MFG. Excellence)



Wooden/Pultruded FRP/RCC



Packaged FRP



Pultruded FRP/Packaged FRP



Interchangeable Spares Drive Shafts, Gear
Reducers, Power Saver FRP Fans & Fan Stacks



Treated Timber/Wood

- Exported to 25 countries, 13000+ Installations worldwide.

Paltech Cooling Towers & Equipments Limited

H.O. GURUGRAM (HARYANA)

BRANCH OFFICES : CHENNAI, RAIPUR, LUDHIANA, MUMBAI & BENGALURU.

E-mail: bd@paltech.net.in/paltech@paltech.net.in | Website: www.paltech.in

REVOLUTIONIZING URBAN WATER MANAGEMENT: THE POWER OF SENSOR INTEGRATION AND REAL-TIME MONITORING

Gaurav Garg, Smart Water Specialist | CIMCON Software India PVT. LTD



THE IMPORTANCE OF URBAN WATER MANAGEMENT

Urban water management is a critical aspect of sustainable development in modern cities. The growing urban population and increasing demand for water resources have put immense pressure on existing water infrastructure. The effective management of water resources in urban areas is essential for ensuring a continuous and reliable water supply for residents, businesses, and industries. Additionally, efficient water management is crucial for environmental sustainability and public health. With the rising challenges posed by climate change and population growth, the need for innovative and

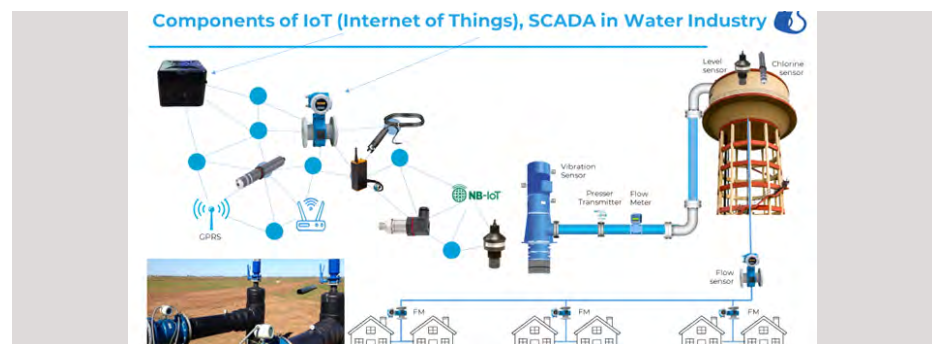
effective urban water management solutions has become more pressing than ever.

One of the key challenges in urban water management is the aging infrastructure of water systems in many cities. The deterioration of pipelines and water treatment facilities can lead to water losses, leakages, and contamination. Moreover, the uneven distribution of water resources and the lack of adequate storage and distribution facilities further exacerbate the challenges faced in managing urban water supply. These issues not only contribute to water wastage but also pose significant risks to public health and safety. Therefore, there is an urgent need to address these challenges through innovative technologies and strategies that can revolutionize urban water management.

monitoring systems in urban water management has the potential to transform the way water resources are managed in cities. By leveraging sensor technologies, water utilities can gain valuable insights into the condition and performance of their water infrastructure. Real-time data collection and analysis enable proactive maintenance and early detection of leaks, reducing water losses and ensuring the efficient operation of water networks. Furthermore, the integration of sensor data with advanced analytics and modelling tools can facilitate predictive maintenance and optimal resource allocation, leading to improved resilience and sustainability of urban water systems.

REVOLUTIONIZING WATER MANAGEMENT WITH SENSOR INTEGRATION

The integration of advanced sensors and real-time



The integration of sensor technologies in urban water management represents a paradigm shift in the way water resources are monitored and managed. Traditional methods of manual inspection and periodic assessments are often time-consuming and resource-intensive, making it challenging to identify and address issues in a timely manner. In contrast, sensor integration enables continuous, real-time monitoring of various parameters such as water flow, pressure, quality, and temperature. This real-time data empowers water utilities to detect anomalies and potential failures promptly, allowing for proactive interventions and preventive maintenance.

Sensors deployed in water distribution networks and treatment facilities can provide valuable information on the performance and condition of critical infrastructure components. For instance, pressure sensors can detect changes in water pressure levels, indicating potential leaks or bursts in pipelines. Additionally, water quality sensors can monitor the presence of contaminants and ensure compliance with regulatory standards. The use of advanced sensor technologies, such as acoustic and electromagnetic sensors, further enhances the capability to detect leaks and assess the structural integrity of pipelines, reducing the risk of water loss and infrastructure failures.

The integration of sensor data with geographic information systems (GIS) and asset management platforms enables water utilities to visualize and analyze the operational status of their water networks comprehensively. By utilizing real-time data and spatial analytics, utilities can prioritize maintenance activities, optimize resource allocation, and improve the overall resilience of water infrastructure. Furthermore, the implementation of sensor integration can support the development of smart water networks, facilitating the efficient management of water resources and enhancing the responsiveness of utilities to dynamic operational conditions.

REAL-TIME MONITORING IN WATER MANAGEMENT



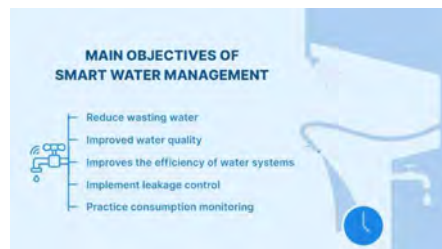
Real-time monitoring systems play a pivotal role in enhancing the efficiency and reliability of urban water management. By continuously collecting and analyzing data from various sensors and monitoring devices, water utilities can gain actionable insights into the performance of their water infrastructure. Real-time monitoring not only enables the early

detection of abnormalities and potential failures but also supports the optimization of operational processes and resource management. With the advent of Internet of Things (IoT) technologies, real-time monitoring solutions have become more accessible and scalable, offering unprecedented visibility and control over water systems.

The deployment of real-time monitoring solutions in water management encompasses a wide range of applications, including remote sensing, telemetry, and supervisory control and data acquisition (SCADA) systems. These technologies enable the seamless transmission of data from sensors and monitoring devices to centralized control centers, allowing for instantaneous analysis and decision-making. Furthermore, the integration of real-time data with advanced analytics and machine learning algorithms can facilitate the development of predictive maintenance models, enabling water utilities to anticipate and mitigate potential issues before they escalate into critical failures.

Real-time monitoring also empowers water utilities to respond swiftly to changes in water demand, supply, and quality. By leveraging real-time data, utilities can optimize the operation of water treatment plants, distribution networks, and storage facilities to meet fluctuating demand and ensure water quality compliance. Additionally, real-time monitoring supports the implementation of demand-driven management strategies, enabling utilities to proactively address water distribution challenges and minimize the risk of service disruptions. The ability to monitor water systems in real time provides utilities with the agility and adaptability needed to navigate complex operational scenarios and deliver reliable water services to urban communities.

Benefits of Water Information Management Solutions



Water information management solutions encompass a suite of technologies and tools designed to capture, analyze, and leverage water-related data for informed decision-making and operational optimization. These solutions offer a comprehensive approach to managing water resources, infrastructure, and services, enabling water utilities to enhance their efficiency, resilience, and sustainability. By integrating advanced data management and analytics capabilities, water information management solutions provide a holistic view of water systems, empowering utilities to address challenges and capitalize on opportunities for improvement.

One of the primary benefits of water information management solutions is the ability to centralize and integrate disparate data sources, including sensor data, operational records, customer information, and environmental data. By consolidating and harmonizing diverse data sets, utilities can gain a unified understanding of their water systems and performance metrics, facilitating evidence-based decision-making and strategic planning. Moreover, the integration of data management solutions with geographic information systems (GIS) and enterprise asset management (EAM) platforms enables utilities to visualize and analyze spatial and operational data, supporting efficient resource allocation and infrastructure management.

The application of advanced analytics and modeling tools within water information management solutions enables utilities to derive actionable insights from complex data sets. By leveraging predictive analytics, machine learning, and optimization algorithms, utilities can forecast water demand, identify potential risks, and optimize asset performance. Furthermore, the implementation of real-time data processing and visualization capabilities facilitates the monitoring of key performance indicators (KPIs) and the identification of trends and patterns, enabling utilities to proactively address operational challenges and drive continuous improvement in their water management practices.

Water information management solutions also play a crucial role in enhancing transparency and accountability in water management. By providing stakeholders with access to comprehensive and up-to-date information on water systems and services, utilities can foster greater public trust and engagement. Additionally, the integration of customer relationship management (CRM) functionalities within water information management solutions enables utilities to better understand and respond to customer needs, ultimately improving the overall quality of service delivery.

Implementing Water Network Asset Management Solutions

Water network asset management solutions are instrumental in enabling utilities to optimize the performance and lifespan of their infrastructure assets. These solutions encompass a range of technologies and methodologies aimed at enhancing asset reliability, resilience, and cost-effectiveness. By adopting a proactive approach to asset management, water utilities can minimize the risk of asset failures, optimize maintenance activities, and maximize the value of their investments in water infrastructure. The implementation of asset management solutions is essential for ensuring the long-term sustainability and operability of urban water networks.

One of the key components of water network asset management solutions is the utilization of asset performance monitoring and condition assessment

technologies. These tools enable utilities to monitor the health and operational status of critical infrastructure components, such as pipelines, pumps, valves, and treatment facilities. By deploying sensors and monitoring devices, utilities can gather real-time data on asset performance, allowing for early detection of deterioration, defects, and potential failures. This proactive approach to asset condition assessment supports informed decision-making and prioritization of maintenance and rehabilitation efforts.

The integration of asset management solutions with risk assessment and investment planning methodologies enables utilities to develop comprehensive strategies for optimizing their asset portfolios. By conducting risk assessments and life cycle cost analyses, utilities can identify critical assets, evaluate potential vulnerabilities, and prioritize investment and maintenance activities. Furthermore, the implementation of asset performance modeling and predictive analytics supports the development of long-term asset management plans, facilitating the optimization of capital expenditures and the allocation of resources to maximize the reliability and resilience of water infrastructure.

Water network asset management solutions also facilitate compliance with regulatory requirements and industry standards, ensuring that utilities adhere to best practices in asset management and performance optimization. By leveraging asset management software and decision support tools, utilities can streamline regulatory reporting, track asset performance against established benchmarks, and demonstrate accountability in asset stewardship. Additionally, the integration of asset management solutions with enterprise resource planning (ERP) and work order management systems enables utilities to optimize their maintenance workflows and resource utilization, further enhancing the efficiency and effectiveness of asset management practices.

Future Trends in Urban Water Management



One of the key future trends in urban water management is the widespread adoption of Internet of Things (IoT) and sensor technologies to create interconnected and intelligent water networks. The deployment of IoT-enabled sensors throughout water infrastructure will enable utilities to gather real-time data on water flow, pressure, quality, and asset performance, empowering proactive maintenance and resource optimization. These interconnected systems will facilitate the development of smart water

networks, capable of adapting to dynamic operational conditions and enhancing the overall reliability and efficiency of urban water supply and distribution.

Another prominent trend in urban water management is the integration of advanced analytics and artificial intelligence (AI) to derive actionable insights from vast volumes of water-related data. By harnessing the power of predictive analytics, machine learning, and optimization algorithms, water utilities can forecast demand patterns, identify potential risks, and optimize asset performance. The use of AI-driven decision support systems will enable utilities to make data-driven and evidence-based decisions, leading to more efficient resource allocation, improved operational resilience, and enhanced service delivery to urban communities.

The Role of Technology in Sustainable Water Management



One of the fundamental contributions of technology to sustainable water management is the ability to optimize water use and distribution through data-driven insights and operational efficiencies. By leveraging sensor integration and real-time monitoring, utilities can detect leaks, reduce water losses, and ensure the efficient operation of water networks. Additionally, the application of advanced analytics and modelling tools enables utilities to forecast water demand, optimize treatment processes, and proactively address operational challenges. These capabilities support the conservation of water resources and the promotion of sustainable water use practices in urban environments.

In addition, technology plays a critical role in promoting public awareness, engagement, and participation in sustainable water management initiatives. By leveraging digital communication platforms and smart metering technologies, utilities can provide consumers with real-time information on their water usage, encourage conservation practices, and foster a culture of responsible water stewardship. Furthermore, the integration of technology with community outreach and education programs enables utilities to empower residents with the knowledge and tools needed to contribute to sustainable water management efforts, ultimately creating a more informed and environmentally conscious society.

CONCLUSION

In conclusion, CIMCON Software India PVT. LTD plays a crucial role in advancing the transformative journey of urban water management through its cutting-edge solutions. With a commitment to innovation and collaboration, CIMCON contributes significantly to the integration of advanced sensor technologies and data-driven solutions. By leveraging their expertise, cities can harness the power of real-time monitoring, proactive leak detection, and comprehensive asset management.

CIMCON's role in providing water management solutions and water network asset management tools aligns with the broader technological shift towards sustainable water practices. As cities optimize their water infrastructure, minimize wastage, and make informed decisions, CIMCON's contributions become integral to achieving the efficiency, resilience, and sustainability goals of urban water systems.

The partnership between technology and urban water management, exemplified by CIMCON, signifies a paradigm shift that empowers cities to overcome challenges and embrace a more sustainable and resilient future. Through this collaboration, CIMCON is instrumental in navigating the complexities of modern water management, paving the way for a future where water resources are managed with confidence and foresight. As cities continue to evolve in their approach, CIMCON's role remains pivotal in shaping a world where technology and innovation harmonize for the benefit of urban water systems and the communities they serve.



About the Author



Gaurav Garg

Smart Water Specialist | CIMCON Software India PVT. LTD

An astute Sales professional & strategist having a proven track record of overachievement with over 14+ years in the domain of Automation and SCADA solutions on IoT Platform, SaaS & cloud based smart solution for water and Industry 4.0, handling key accounts in Government, PSUs, Smart Cities, ULBs, Industries. He joined CIMCON, where he has been working for over 5 years. During his time at CIMCON, he played a pivotal role in successfully completing various Water and SCADA projects across India under the various Central and State Govt. scheme. Currently, he is actively involved in working on projects related to the Jal Jeevan Mission in different states of India.

**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 21 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 future...

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

HOUSEHOLD CHORES COULD SAVE LOTS OF FRESH WATER

Mrs. Kavita Kapadia, Science Educator & Dr. Heli Shah, Pathologist

Water - the sole lifeline of the mankind and a precious gift of nature – is becoming increasingly scarce. In the face of climate change, India's freshwater resources are at threat. Water in India becomes a commodity as precious as gold in summer. The country has 18 percent of the world's population, but only 4 percent of its water resources, putting it among one of the most water-stressed countries in the world. The situation prevailing today calls for looking at ways of conserving fresh water to the maximum possible extent, reuse it several times and recycle wherever possible

Well, while a very large proportion of water (~70%) is deployed for agriculture and industries (~20%), domestic use still accounts for ~10% of freshwater consumption. It cannot be the sole responsibility of Agriculture and Industries to adopt water-saving methods. The daily household chores should also look at the localized and workable solutions to use a lesser quantum of water as far as possible. To meet the growing water needs, we must make changes in our everyday routines and habits. The homemakers must discover ways to conserve water at home. Energy-efficient gadgets available in today's market have eased the efforts of homemakers to conserve water.

It is the objective of this article to appraise the readers about some water conservation ideas that could be put into practice in different areas of general household chores. It should be an endeavor of every homemaker to adapt to such water-saving habits to protect water resource for a longer period of time.

COOKING

Reuse of cooking water: Rather than casually discarding water generated during cooking, it is always better to reuse it for the next batch of cooking or water plants in the kitchen garden. The whey of

milk products like Paneer / Curd / Cheese, Pasta water, etc are especially safe to save and store for reusing them for various cooking purposes like making dough/gravy, cooking rice, and so on. While adding complexity, nutritious richness, and tenderness to the noodle/paneer-like recipes, such a practice also saves some amount of fresh water.

Vegetable & Fruits Washing :

- The water collected after cooking can be used to wash fruits and vegetables. The water collected after washing the vegetables/fruits should then be used for watering potted plants.
- If one happens to use fresh water for washing vegetables, there is no need to leave the tap running while washing fruits and veggies because a running tap pumps out almost 6-12 liters of water every minute. The sink or a washing-up bowl should be filled with just enough water to loosen any dirt from the produce. The left-out water should be used for watering the pots and garden plants.

Steam rather than boil vegetables: Steaming the vegetables, rather than boiling, not only saves water but also makes the vegetables more nutrient-rich. This is because boiling water causes nutrients to leak out which makes our veggies less healthy in the process.

Boiling: Whenever one is boiling something, water just enough to cover the food should be used instead of filling the pot to the rim.

Rinse water: The rinse water for utensils should be saved and used to water the houseplants or for other cleaning purposes in the house such as floors, toilets, and sinks.



Defrosting the food: For defrosting frozen food, it is a general practice to let the faucet run till the food attains the desired temperature. Use of a large bowl filled with water in such cases can save a good amount of fresh water.

Sink-to-toilet system: A modern and technologically advanced option is to install a sink-to-toilet system in the kitchen. This system has an adjustable sink top attached to the toilet's refill cycle. The system filters the sink drainage and then stores the water in a reservoir, which is used to flush the toilet.



DRINKING WATER

RO system: Most of the houses are accustomed to RO systems for drinking and cooking purposes. These systems need to discard a considerable amount of water as Reject Water. Rather than allowing this water to be drained off, it should be collected and used for bathing, car washing, and compound/porch washing.

Cold drinking water: To get very cold water from a water cooler or fridge, many times, a substantial quantity of perfectly good water is drained down. This water should be collected in a large jug and reused for filling the fridge containers.

Unwanted ice: Instead of dumping ice from overstayed ice trays from the freezers or ice coolers in the drain, it should be spread on the garden grass or around plants and let the ice melt into liquid.

Unused drinking water: Drinking water stored for a long period has a stale taste. It also has a great probability of being contaminated by bacteria. Instead of disposing of it, it should be used for washing utensils and other household chores as it is not that dirty. Stale pet water can also be used on potted plants.

Hot water: Generally, the kettles are filled up to the rim while warming drinking water for tea making or drinking. Rather than filling the kettle fully with each use, one should measure the amount of water needed before filling the kettle. This way, the wastage of water can be avoided. Moreover, it also saves time and energy/gas.

CLEANING

Use of Dishwasher: More effective utilization of household appliances is a great way to save water.

- For a housewife, it is always prestigious to keep her kitchen clean, but the habit of running the dishwasher without having a full load goes through a lot of water. By waiting until the dishwasher is full, a homemaker is really valuing the water in the true spirit of conservation. It gets the most 'bang for the buck'!
- One might think that not using a dishwasher is a good idea when it comes to water saving. However, the fact is that the use of dishwasher at full load will always use relatively less water than hand-washing the utensils.
- Pre-washing of the dishes is not required for most modern dishwashers, so skipping this step can save water.
- For too big and dirty items, the homemakers would prefer to rinse them before washing to

remove food buildup and stains. As a matter of fact, rinsing the pots and pans needs running tap water, which consumes a good amount of water. Under such circumstances, one should prefer to soak such dirty items in the large bowl of water and skip the rinse step.

Use of Washing Machine: Like a dishwasher, it is the best idea to run the washing machine only when it has a full load of dirty clothes. Apart from saving water, the user gets more clean clothes at full load because too much water dilutes the detergent action and leaves clothes less clean. This way, one can get fresher whites and deeper colors by washing full loads.

- However, while washing a smaller load of laundry, one must make sure that the machine controls are adjusted to compensate water level with a smaller load.
- The cold water wash cycle of the machine consumes less water and energy. So the hot cycle should be avoided.

Reuse of water from laundry: Wastewater from laundry cleaning can be directed for outdoor use. To augment this, the discharge hose of the machine should be connected to a longer run-off hose that can reach the yard. This arrangement will enable the collection and use of wastewater every time laundry is done. With a longer hose pipe, it is easy to move the outlet to different points in the yard to avoid erosion and ensure even watering of the lawns. The laundry water can also be used for cleaning the compounds, pavements, and driveways.

Leak checks: The unknown leaks from pipes and household appliances are a major source of water loss. Therefore, it is a best practice to check the leakages periodically.

Towels & Napkins: The bath towels, napkins, dishcloths, etc should be used several times before tossing them in the laundry after hanging them to dry in between. Similarly, jeans clothes and other dark-colored clothes could be used more than once before washing, particularly in the winter season when perspiration does not take place. This does not only save water, but it also increases the durability of these items.

Up gradation of appliances: A household saves a good amount of water by upgrading the appliances to water-efficient appliances. Not only will this cut back on water consumption, but it will also save money over time when it comes to utility costs. As a rule of thumb, front-loading washers use less water than top-loading machines.

MORNING ABLUTIONS

Brushing/Shaving: Turning off the taps while brushing or shaving is the easiest way to cut back on water usage. There is no need to keep the water running while one is in the process of cleaning the teeth or trimming the beard. The use of a tumbler to rinse the mouth after finishing brushing or shaving can save water as compared to the practice of using hands under a running tap for rinsing the mouth.

Toilet flush:

- The toilet should be flushed only when necessary. Use of courtesy flush should be avoided and flushing should be done only once at the end of using the toilet.
- Tissues, cigarette butts, and other stuff should not be disposed of in the toilet. If a toilet is used conveniently like a wastebasket, it needs unnecessary flushing.
- Wherever dual-flush toilets are available, it should be ensured to use the smaller button when getting rid of liquid waste to avoid wasting water.
- The flush tanks generally can store 7.5 to 15 liters of water. Its button, once pressed, will pour the entire quantity of water stored. To conserve water, it is worthwhile to displace part of the water quantity by dropping a bottle or bag filled with pebbles into the flush tank. This will displace some water and minimize the amount of water needed to fill the tank. This water-saving might sound meager, but the same very minor quantity of water could save a sizable water quantity when multiplied by the number of times a fellow is required to flush the toilet in a day.
- High-efficiency toilets have improved flushing system that deploys water and vacuum for flushing. This design of the commode and flush tank has dramatically reduced water consumption to almost one-third of the common design. When going for toilet renovation, the installation of a high-efficiency commode and flush tank must be considered.
- **Damaged pipes and leaky taps:** Those living in Metros should inspect their water meter and utility bills every month to see how much water is used. Any noticeable spike is a sign that there are some leaky pipes somewhere in the home. Such pipes and taps should be immediately identified and replaced. Poorly sealed toilets waste a lot of water. Many times, it is difficult to make out whether there is a leak or not. The internal leaks of the flushing line can be checked by pouring a drop of color pigment in the toilet's tank and waiting for 10–15 minutes to see the passing of color in the toilet commode. If the color shows up in the commode, there is a leakage that needs to be arrested.

Bath:

- Everyone loves a long, hot shower, but the showerhead uses roughly 5–7 liters of water a

minute. The long duration of the shower does not add to the cleaning of the body. One can be just as squeaky clean with short showers as normally would be after a long shower. Therefore, everybody should get into the habit of taking showers that last 5 minutes or less whenever possible.

- One should bear in mind that a long shower generally consumes more than 100 liters of water, whereas a short one consumes less than half.
- Use of a bathtub should be avoided as it consumes around 300 liters of water. Switching from 30 minutes soak in a bathtub to 10 minute shower could save about half of the water quantity.
- If affordable, it is better to switch to water-saving fixtures by low-flow alternatives of showerheads and faucets. This can cut back dramatically on water usage. By adopting these fixtures, water can be saved without even changing the ways to wash, flush, or shower!
- If switching fixtures is out of the budget, the installation of a cheap aerator on each of the taps should be considered to throttle the water flow. This installation will not cause any alteration in the habits of family members and they will not even notice the change easily.
- When using geysers, people need to waste >10% water while waiting for hot water to arrive out of the tap or shower. It is a creative idea to collect running water from a tap or shower in a bucket till hot water starts flowing. The fetched water can be used for flushing the toilet, watering the plants, or washing the car/floor.



OUTDOOR

Gardening: There is a need to change the gardening habits. There are a variety of ways to save water for landscaping or gardening.

- Plantation of native or drought-resistant plants for home gardens does not call for frequent watering. One should be careful while selecting the plant varieties to stick to native rather than exotic plant species.
- If a watering can is deployed instead of a hose for watering the plant, a good quantity of water will be saved.
- Pruning the garden and taking the weeds out not only keep the plants healthy but also cut back on the water requirements.
- Since longer grass helps soil retain moisture, the lawns should not be cut to the maximum. Setting lawnmower blades at 2–3 inches

higher when mowing can help fight droughts and restrict water use.

- Up to 50% of water sprinkled in the garden is lost due to wind, evaporation, and runoff caused by inefficient watering methods. The watering schedules should be commensurate with the season e.g., water sprinklers should be operated less frequently during the winter season.
- If watering is done in the morning hours, less water is lost by way of evaporation.
- The use of compost wood chips or straw is another great way to conserve water in the garden because it prevents evaporation and helps plants to hold their moisture.



- **Car Washing:** Instead of using the garden hose to clean the car, a few buckets should be filled to rinse and wipe the car. There are waterless cleaning products available to clean the vehicles, which will cut out the need for water entirely.
- **Porch / Driveway cleaning:** Sweeping of the driveway, sideway and porch should be done instead of washing with a pressurized fresh water hose. For cleaning something especially dirty, a damp cloth should be used for cleaning it by hand instead of leaving the hose running. Such practices will of course take a few extra minutes, but they will save a lot of water. When utmost essential, these outdoor areas should be washed using water collected from the washing machine or cooking.
- **Rainwater harvesting:** Harvesting rainwater is a natural and excellent way of saving water. If rainwater is collected in clean barrels, the water can be later reused for yard cleaning or gardening.

CONCLUSION

Water conservation has become necessary in the present times because the natural resources are reducing along with the increasing population and their usage. Conserving water helps us by supplying more amount of water for longer usage. Saving water does not require major lifestyle changes. By changing a few small habits, we can go a long way towards making the world a better place! Adopting small habits can have a big impact on the water footprint. The small ideas and steps presented in this article would not save a lot of water on their own, but they will definitely add up to a substantial figure over time! Using water efficiently helps to preserve the environment, minimize the impact of droughts, and take some pressure off of the public water supply. At the same time, it cuts the utility cost of a household to make a great favor for the wallet of the family!

ACKNOWLEDGMENT

The authors are extremely thankful to Dr MJ Kapadia for his inspiration, constant motivation, and assistance in the preparation of the manuscript as well as critical reading.



About the Author



Mrs. Kavita Kapadia
Science Educator

Mrs Kavita Kapadia possesses qualification of MSc, DCA with brilliant academic record. Apart from managing her home and family, she has been providing Mathematics and Science education for last 33 years to aspirants of school board examinations. She has also been rendering her services for various activities of local Community Science Centre for inculcating scientific themes in the young minds. She has been a guide to school students for creation of science-based projects. Preparing delicious dishes is her hobby. She has read many books and attended scientific sessions.



Dr. Heli Shah
Pathologist

Dr (Mrs) Heli Shah is a medical professional possessing MD (Pathology) degree from prestigious BJ Medical college of Ahmedabad. She has been providing her professional services to Pathology Laboratories for 6 years. She also has worked in a medical college for teaching under-graduate students. In addition to her professional assignments, she fondly carries out kitchen activities and other household jobs. She has mastered few recipes. She has attended various medical conferences and undertook a few pathology projects.



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

SMART CITIES: DIGITAL WATER SUPPLY CONTROL

Dilip Yewalekar, Senior Vice President, Jain Irrigation and Manisha Kinge (M.Tech-Agri Engg), Jain Irrigation

WHAT IS A SMART CITY?

In June 2015, the Prime Minister launched 'The Smart Cities Mission' in Bharat, aiming to transform urban areas to make them more citizen-friendly, and sustainable, maintaining hygiene and upgrading to international standards. The mission seeks to harness digital technology to improve the quality of life for residents and promote economic growth.

In Bharat, cities accommodate nearly 31% population and 40% in Urban. This mission is an initiative to drive economic growth and improve the quality of life of people by enabling local development and harnessing technology as a means to create smart outcomes for citizens.

AMENITIES FOR SMART CITY

- Adequate Water Supply.
- Assured Electricity Supply.
- Sanitation including solid waste management.
- Affordable housing, especially for the poor.
- Robust IT connectivity and digitalization.
- Good governance, especially e-governance and citizen participation.
- Sustainable environment.
- Safety and security of citizens, particularly women, children, and the elderly.
- Health and education.

Among above water supply system is very important aspects for communities. Till date water supply system is implemented and controlled manually by local administration Gram Panchayat/Municipal Council/ Municipal-Metro Corporation in unorganized way. It has lot of lacuna in uniform water supply, poor water quality control, revenue and lack of operation and maintenance and audit. To overcome those problems, Govt of India has taken initiative and added digital control of water supply as one of important amenities while constructing smart cities. Apart from small cities, ambitious project of AMRUT is also considered for cities not covered under smart city scheme. The said article briefs the digital control water supply system in smart cities.

WHAT IS DIGITAL CONTROL?

Digital describes electronic technology that generates, stores, and processes data in terms of two states: positive and non-positive. Positive is expressed or represented by the number 1 and non-positive by the number 0. Thus, data transmitted or stored with digital technology is expressed as a string of 0's and 1's. Each of these state digits is referred to as a bit.

Prior to digital technology, electronic transmission was limited to analogy technology, which conveys data as electronic signals of varying frequency or amplitude that are added to carrier waves of a given frequency. Broadcast and phone transmission have conventionally used analogy technology.

CONFIGURATION OF WATER SUPPLY SYSTEM

Water Supply System comprises of following components (Fig 1. Configuration of Digital Water Supply System).

- Water Source (River/Lake/Dam).
- Intake Structure (Intake Gallery, Intake Pipe, Motor-pump).
- Aeration.
- Coagulant Plant.
- Sedimentation Plant.
- Filtration Unit.
- Disinfectant Plant.
- Finished Water Storage.
- Elevated Storage Tank (ESR).
- Water Distribution System.
- Digital Control –Automation (IoT Based) – SCADA System.

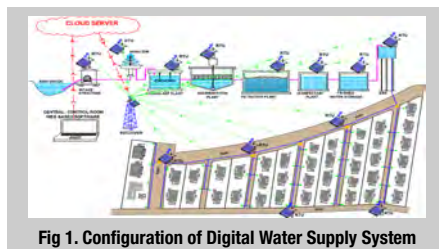


Fig 1. Configuration of Digital Water Supply System

PHILOSOPHY OF DIGITAL CONTROL

Philosophy of Digital Based Automation system is based on backward integration of governing parameters like Per capita Demand, Fire demand, Green zone demand, and its judicial use along with price, viability, and assessment of risk. The prime objective of Digital Control is to optimize hassle-free operation, monitoring, management, Billing, Revenue Collections, and on-time service. Digital automation is comprised of Radio Frequency (RF), Microprocessors, Flow Sensors, Pressure Sensors, Water Level Sensors, EC/pH Control, Water Quality Sensors, Injectors, Electronic Water Meter, Controller, Internet/cell phone connectivity, Laptop/PC, Software for interpreting the information and make the decision to execute the command of various activities in order to provide feedback to users via SMS / What'sapp / Email in a fraction of time.

Various options and combinations of control & operations of input-output are possible on a need basis. Considering the benefits, adaptability, and instant feedback & action facility, the Digital Automation system has great potential as a large-scale water supply system for a city in the world and is successfully implemented in India and abroad at many Municipalities under AMRUT Scheme.

AMRUT SCHEME

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was launched in June 2015 by PM under the Government of India. The AMRUT scheme is an initiative to provide basic civic amenities to the urban areas to improve the quality of life with major focus to the poor and the disadvantaged. It is the first focused national water Mission, which was launched in 500 cities and covered 60% of the urban population.

The AMRUT Scheme focuses on establishing an infrastructure for ensuring adequate sewage networks and water supply in the urban areas through the implementation of the urban revival projects.

The main objectives of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) are mentioned below:

- To ensure a proper supply of water and a sewage connection in every household.
- To develop green and well-maintained open spaces and parks to increase the amenity value of the cities.
- To reduce pollution by switching to public transport or through the construction of non-motorized transport facilities such as walking and cycling.
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aims in covering around 500 cities that are having a population of over one lakh with notified municipalities.
- Digital control of water supply Scheme.

COMPONENTS OF DIGITAL CONTROL

Digital Control System incorporated with hardware and software components for communication of various data from source to end users within a fraction of time very preciously and honestly. The entire data of the project is stored in cloud-based storage and retrieved at any time.

a. Hardware. (Fig 2. Hardware components used in Digital Control System)

- Mobile (Android)
- Laptop/PC
- Digital Water meter
- RTU (Radio Terminal Unit)
- Controller – microprocessor-based
- Pressure Sensors
- Flow Sensors
- Water level sensors
- EC (Electrical conductivity) & pH Sensors & Monitor
- Chlorine / Ozone Injector
- Hydraulic valves + pressure pilot + Solenoid
- Weather Station



Fig 2: Hardware components used under Digital Control System

b. Software (Fig 2. Networking)

- Operation & Billing software program.
- Internet network (GSM).
- Cloud Server-Storage

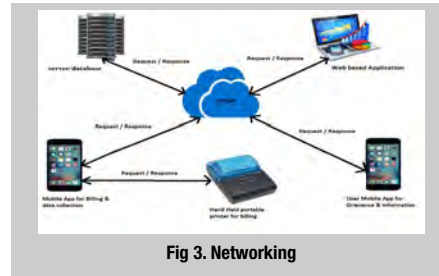


Fig 3. Networking

Jain Irrigation Systems Ltd has played a significant role in developing / implementing Digital Control in water supply scheme for City water supply Scheme. In this system, communication among the various equipment/devices is established via electronic media – email or internet, to view the status at glance and accordingly ease to take the decision to optimize utilization of facilities in the right directions - control of timing, uniform distribution of water, water quality control, billing & revenue collections.

The level Digital Control can best be understood and defined by subdividing automation into Six stages.

1. Regulating Devices (Control valves, Pressure Regulating valves, Solenoids).
2. Measuring Devices (Water meter, flow meters).
3. Sensors (EC/Ph sensors, Pressure Sensors, Flow Sensors, Water level sensors).
4. Auxiliary Devices (weather station).
5. Interpreters/Transmitters/Communicators/ Receiver.
6. Display, Monitor & Admin + Software (Laptop, mobile, App).

A command is the name given to the mechanism (work to be done) through which a change in status is achieved in field remotely or as per pre-program (eg. On/off command). Commands can be conveyed through a number of media via wi-fi & radio frequency to receptor controller and then finally executed through hydraulically or electrically to get specific result or output.

After successful work done acknowledgment message is sent to end users to complete the cycle with preference, predictions, warnings, next turn of work etc.

Following task can be monitored in Digital Control:

- Water Supply by Pre-paid /Post-paid meter to end-users.
- Leak detections in the system.
- Pressure check and regulation.
- Water quality check and control entrances –exist for a cluster network.
- Chemical treatment such as Chlorine / Ozone to cluster network/zone
- Operation of hydraulic valves based on sensors or flow meter/water meter.
- Alarming / warning in case of fault and manual overriding.
- Quantification of water used / demand.
- Trouble shooting in the operation of the system.
- Assessment of risk factors and remedies.
- Record of water volume and accurate billing.
- Optimizing water price to end-user.
- Water conservation.
- Power conservation.
- Assessment of risk factors and mitigation.
- Storage of all data in hard disc and
- Monitoring /Accounting: cost –economics.
- Optimization of the entire process and future planning.

ADVANTAGES

1. Water conservation

Water can be conserved both by increasing the technical (network) efficiency in the system by introducing leak & fault detections devices, water allocation errors and exploitation of optimum irrigation by interpreting soil moisture, weather data and crop water demand.

2. Effective utility of multi water source

Many Water Supply Schemes have more than one water sources located at various distances. Integration of various water sources can be done effectively to minimize the expenses of power and water losses.

3. Water Quality Control

Greater efficient dosing of chlorine.

4. Energy or Fuel Conservation

Electrical motor pumpsets / Diesel Generator sets can be integrated with Demand-Supply ratio and operation of entire water supply process can be optimized as per need base and thereby consumption of electrical power or fuel cost be optimized.

5. Administration cost savings

The abolishment of the need to physically switch on each and every water clock, to manually record each and every flow meter are the main factors that help to reduce the administration costs as well as pinpoint

fault location.

6. Convenience – The Human factor

It is really impossible to evaluate, quantify and cost & benefits of this factor. In many instance, in addition to wishing to improve the human efficiency, reasons quoted are 'self- esteem', Saved persons hours may be quantified but it is harder to evaluate the effect of convenience factor.

**DID YOU
KNOW?**



Water has a unique property called "surface tension" that allows small insects like water striders to walk on its surface.



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.

Fellowship World Bank and Mashav, Israel

Faculty: Govt College of Engg, Jalgaon.

Faculty: Micro Irrigation Course of ICID & CWC, Govt of India.

Reviewer –ICID Conference, Beijing, China 2023

Awards: 1. The EEF Global Water Leadership Award – Global Water foundations. 2. Strategic Leader in Micro Irrigation – ABSA Award. 3. Professional Excellence Individual Award – Aqua foundations. 4. Great Manager 250 Award, Economics Times, honored 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.



Manisha Kinge
(M.Tech-Agri Engg)

Email: kinge.manisha@jains.com, Mobile: + 91 9359457168.

Manager –Design & Projects (Dom/Export)

Faculty: Micro Irrigation Course of ICID & CWC, Govt of India.

Awards: 1. Recipient of ABSA 2023 Award : Women Creating Impact in Agriculture

- Micro Irrigation. 2. Best Innovative Article in Sabujeema International Magazine

Overall experience of 18+ years in Water Management – Irrigation, Agriculture - Planning, Designing, Execution, Management & marketing in India and Abroad.

35+ papers/publications at national/international conferences/magazines/books.

EverythingAboutWater

Annual

BUYER'S GUIDE

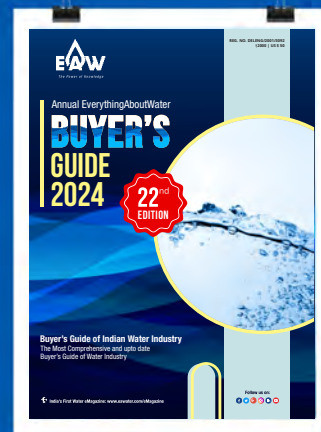
Directory.

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



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

CHALLENGES AND FUTURE TRENDS FOR WATER MANAGEMENT IN CITIES

Vishal Kotadiya, V.P. Program Management | CIMCON Digital



INTRODUCTION:

The concept of smart cities has ignited a technological revolution, promising more efficient urban living, enhanced sustainability, and improved quality of life. One of the most critical aspects of building these cities of the future is water management. As urban populations grow and the threat of water scarcity looms, addressing water-related challenges becomes paramount. In this article, we will delve into the challenges faced by smart cities in water management and speculate on future trends in digital water technology. We will also explore how CIMCON Digital's solutions, including anomaly detection, IoT-enabled sensors, and machine learning, are leading the way in revolutionizing water management in smart cities.

CHALLENGES IN WATER MANAGEMENT:

1. Reducing Water Column: The challenge of

reducing the water column, the depth from which cities draw their water, is central to urban water management. Efficiently monitoring and managing water levels is crucial to prevent waste and ensure a consistent supply.

2. Scarcity of Water: The looming water scarcity crisis, exacerbated by climate change, makes it imperative for smart cities to use technology to optimize water usage and preserve this precious resource.

3. Water Quality Monitoring: Ensuring the quality of the water supply is essential to protect public health. Smart cities must continuously monitor water quality, detect anomalies, and respond swiftly to any issues.

4. Saving Water Through Automation and Control: Automation and control systems are vital for optimizing water usage in urban areas. However, implementing these systems effectively is

challenging.

5. Leak Detection: Water leaks are a major source of water wastage in cities. Detecting and addressing leaks promptly is essential for efficient water management.

6. People Embracing Technology: In some cases, residents may resist new technologies for water management, making it challenging to implement IoT and digital solutions.

7. Technology Maturity: Implementing digital solutions in water management requires mature technology, and smart cities may face difficulties in finding the right balance between innovation and reliability.

FUTURE TRENDS IN DIGITAL WATER TECHNOLOGY:

1. IoT for Water Management: The Internet of Things (IoT) will play a significant role in water management, with sensors and devices providing real-time data on water levels, quality, and consumption.

2. Advanced Sensors: The development of more advanced and cost-effective sensors will enable even more granular data collection, allowing cities to fine-tune their water management strategies.

3. Video Analytics: Video analytics can be used to monitor water infrastructure for leaks, tampering, or irregularities. This technology can also ensure the security of critical water facilities.

4. Machine Learning and Anomaly Detection:

Machine learning algorithms will be used to analyze vast amounts of data for anomalies, which can signal potential issues such as leaks, contamination, or inefficiencies.

5. Cloud-Based Solutions: Storing and processing data in the cloud will provide cities with flexibility, scalability, and the ability to access data and analytics from anywhere.

CIMCON DIGITAL SOLUTIONS:



CIMCON Digital is at the forefront of innovative solutions that address these water management challenges:

1. Anomaly Detection: CIMCON's anomaly detection system leverages machine learning to analyze water data, instantly identifying any irregularities. By proactively addressing issues, cities can avoid significant problems, such as leaks, water contamination, or excessive consumption.

2. IoT-Enabled Sensors: CIMCON's IoT-enabled sensors are essential for real-time data collection. These devices continuously monitor water levels, quality, and usage, allowing for immediate response to changes or emergencies.

3. Saving Water Through Automation and Control: CIMCON's automation and control systems enable cities to optimize water usage. By leveraging real-time data, these systems adjust water distribution, pressure, and treatment, reducing waste and increasing efficiency.

4. Leak Detection: CIMCON Digital's solutions include advanced leak detection systems that use acoustic sensors to pinpoint leaks. This technology ensures swift action to repair leaks and minimize water loss.

5. Machine Learning for Predictive Maintenance:

CIMCON uses machine learning for predictive maintenance, analyzing historical data to predict when equipment or infrastructure may require maintenance. This helps cities proactively address issues before they become crises.

6. Mature and Proven Technology: CIMCON Digital's solutions are built on mature, reliable technology that has been tested and proven in various real-world applications. This ensures that smart cities can rely on these solutions for their critical water management needs.

CONCLUSION

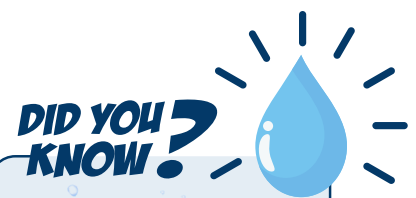
The challenges facing smart cities in water management are complex, but the potential benefits of efficient, digital water technology are immense. CIMCON Digital's innovative solutions, from anomaly detection to IoT-enabled sensors and machine learning, are leading the way in revolutionizing how cities manage their water resources. As technology matures, and as cities embrace these solutions, the future of water management in smart cities looks promising. With CIMCON Digital at the forefront of this transformation, cities have the tools they need to address water challenges head-on and ensure a sustainable, efficient water supply for their residents.

About the Author



Vishal Kotadiya
V.P. Program Management | CIMCON Digital

Vishal is at the forefront of technological innovation, providing strategic leadership and vision that propels CIMCON Digital into the era of Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT). His expertise extends to the design and implementation of IoT solutions for remote monitoring and control, leveraging his mastery of microcontrollers and sensor technologies. From AI/ML solution development to IoT product design and development, and from firmware development to Python programming, he navigates the complex landscape of emerging technologies with ease. He thrives in dynamic environments, where his expertise transforms challenges into opportunities. Vishal excels in predictive maintenance, video analytics, and transit surveillance, redefining industry standards. As we journey into the future of technology, Vishal stands as a trailblazer, charting the course for a smarter, connected world.



The water infrastructure often faces the threat of cyberattacks, ensuring the cybersecurity of water supply systems is becoming increasingly critical to prevent disruptions and protect public health.

CONNECTED SOLUTIONS FOR SUSTAINABLE, RESILIENT, AND AGILE WATER INFRASTRUCTURE

Cecilia Correia, Senior Water Solutions Manager at Bentley Systems

WATER CHALLENGES

Increasing population, the effects of climate change, and water scarcity place enormous pressure on organizations to manage water resources safely, securely, and sustainably.

As water is one of the main pillars of the economy and society, it is necessary that its use be based on sustainability and efficiency. However, water scarcity remains a concern in many parts of the world, and finding ways to increase capacity for future generations is critical.

While water availability is a cause for worry in emerging economies, developed countries also face challenges. Water scarcity is not only due to an increase in demand, but also due to management, overextraction of groundwater, or even contamination of freshwater bodies. These issues too can lead to a lack of cooperation on transboundary waters. Challenges can be related to economic sustainability, infrastructure resilience, and rehabilitation, as well as operational efficiency.

Water security is on the top agenda for the United Nations, which recognizes the importance of and access to water as a priority within the 2030 Sustainable Development Goals. The World Bank also announced their new vision; “A World free of poverty, in a liveable planet,” where water plays a central role when it comes to achieving liveability. Liveable means a world without conflict, with access to clean water, clean energy, and clean air, and that can respond to

poverty.

DIGITAL MATURITY ALIGNS WITH ORGANIZATIONAL MATURITY

One difficulty that the water sector faces is data collection and format standardization to easily implement digital solutions. We are still in the middle of a shift between paper and digital processes. Both paper and digital systems co-exist today in many organizations, requiring time to fully embrace digitization.

Challenges always depend on the way that we adapt to change. Either you see change as an opportunity to learn and grow or you see change as a problem that will give you more work, on top of the work that you are already asked to do. Change must be an incentive and opportunity to learn and grow.

Advancing the world's water infrastructure is key to addressing climate change, meeting SDG goals, and meeting the business goals of organizations and engineering firms globally.

CONNECTING INFRASTRUCTURE

The world becomes more digital each day. Therefore, to ensure that water infrastructure meets sustainability and resiliency goals, water sector leaders must embrace robust digital solutions that can provide meaningful solutions to solve the most challenging issues. It is critical that data and multiple technologies integrate, as everything is

interconnected. Working in silos creates data-sharing gaps and inefficiency in operations, as well as makes it very hard to comply with standards. Without digital solutions, it is difficult to understand what the data is saying, leading to potentially missing the important advantage of the integrated digital information sharing in agile workflows.

Enabling water engineers and leaders to design, plan, construct, and operate water, wastewater, and stormwater infrastructure will improve quality of life. Bringing water to people is giving them the most basic human need for health and well-being, and technology plays a key role. In fact, the advancement and implementation of digital solutions are improving the design, build, and operation of efficient and resilient water and wastewater infrastructure by connecting technologies, systems, and workflows across the water engineering and operations lifecycle.

However, despite various global efforts, universal access to water is still lagging, with billions of people lacking safely managed drinking water, sanitation, or basic hygiene. On the other hand, utilities face stress created in water sources such as aquifers and reservoirs. Aging infrastructure that treats and delivers clean water, collects and treats wastewater, and manages stormwater, surface water, and groundwater, puts these critical resources at risk. Climate change and climate actions add impacts, with a need to strengthen our resilience.

Countries, cities, and communities are under great pressure to manage their water safely and securely

and with foresight to make better decisions. Water is one resource for which no substitute exists, yet climate change (flooding and droughts), burgeoning populations, and shifting lifestyles have all placed pressure on this critical resource.

To address these challenges in a collaborative and transparent environment, it is paramount to develop digital solutions for infrastructure intelligence. These solutions must be open and interoperable, able to connect to different technologies, such as IoT and analytics, bring data and information from different sources, and leverage artificial intelligence (AI) and other advanced methods. They will allow organizations to grow and evolve, as the requirements and standards change.

DIGITAL TWIN SOLUTIONS – SUCCESS STORIES

The skills shortage in the industry is real. Experienced people are retiring and taking their knowledge with them. Capacity can be increased by leveraging technology to improve efficiency, and productivity will increase through better automation, collaboration, and improved digitization.

With an interoperable and open digital solution, Bentley relies on leveraging the value of digital data, such as the iTwin Platform, which is the foundation for building infrastructure digital twin SaaS solutions to design, build, and operate infrastructure assets.

A lot has been said about AI, but what will revolutionize the water industry will be how it is implemented in our technologies to understand data, analyze, and simulate scenarios.

The applications and solutions that are producing some outstanding projects in the water sector are showcased each year at the Year in Infrastructure and Going Digital Awards in Infrastructure event. Two examples that were included at this year's event are:

- The EchoWater Project in Sacramento, which won the Going Digital Award in the Water and Wastewater category, includes upgraded infrastructure to facilitate the treatment of approximately 135 million gallons of wastewater per day, providing a safe and reliable supply of recycled water. Consisting of 22 individual projects centered around constructing a sprawling complex for removing 99% of ammonia and 89% of nitrogen, planning and managing the design of these simultaneous components on an active wastewater treatment facility presented significant challenges. The team used Bentley's SYNCHRO and iTwin to develop construction solutions and a digital twin,

anticipating and mitigating potential obstacles and shutdowns, and providing optimal and timely situational awareness of cost and schedule performance. Working in a connected digital visual environment enabled the designers to complete the project USD 400 million under budget. The project cost savings are being used to fund California's Harvest Water program, providing recycled clean water to the Central Valley's agricultural industry.

- As part of the India government's programs to provide safe, reliable drinking water and eliminate gravity-fed distribution networks, Ayodhya Authority contracted Geoinfo Services to plan and design a pressurized city water supply scheme. The new pressurized network provides 24-hour access to clean water and reduces nonrevenue water by 35%. Geoinfo faced challenges modeling the hundreds of network pipes and nodes that previous software could not accommodate. To convert Ayodhya's existing system to a reliable, energy-efficient network, Geoinfo needed advanced hydraulic modeling and digital twin technology. The optimized network is saving USD 1.5 million in annual operating expenses and USD 46,025 in annual energy costs, while eliminating 347 tons of carbon emissions per year. The digital twin facilitates virtual monitoring with 95% confidence to improve decision-making and mitigate emergency situations.

ACT WITH PURPOSE

As the world grows in population with the increase in climate challenges, it is crucial to develop interoperable technologies that can connect cities and natural resources, such as water. The industry must consider implementing the most effective solutions, which will enable them to meet their targets and shift to a circular economy, constituting an opportunity to reinvent themselves.

With so many variables and challenges, which range from digital advancements of operations to rethinking water reuse and recovery and intersecting with energy challenges, the industry still has a long way to go before it can claim success of this circular interoperability.

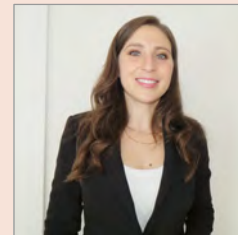
We live in an era of buzz words and trends. To become meaningful, the industry needs to act with purpose—where climate action is not a burden, but instead it is an opportunity to rethink and rebuild a more sustainable, resilient, and water-wise world.



Caption: EchoWater project
Courtesy of: Project Controls Cubed LLC



About the Author



Cecilia Correia
Senior Water Solutions Manager
at Bentley Systems

Cecilia Correia is a senior water solutions manager at Bentley Systems. She has 18 years of experience in the water sector, having worked in different areas, such as governmental river basin administration, engineering consultants, water utilities, and software providers for water solutions. She also has experience in consultancy, design, modelling, and sales as part of her competencies in her professional journey. Today, she is part of Bentley's water team, with a focus on digital solutions and partnerships, and aims to support empowering water utilities to achieve their strategic goals in water efficiency.

OPERATIONAL EFFICIENCIES CREATED WITH SMART WATER TECHNOLOGIES

Sourav Daspatnaik, Managing Director, Swach Environment Pvt Ltd

As water utilities across the country, operationally minded teams focus on how to best deliver water to customers in a cost-effective manner. Components contributing to operational efficiency inside a water utility include resource utilization, supply chain management, billing processes, customer service, and employee safety. All of these components work together in balance to support seamless operations. Operationally Demanding and Resource Intensive Providing water utility services isn't a simple process. It has long been a time- and labour-intensive endeavor.

Unlike the Telecom sector or Power Utility sector, the water segment in India is yet to achieve commercial tariff policy and thus charging for water is still a debated issue in most parts of the country, and some places. In many urban areas where meters are installed, meter readers walk neighborhoods documenting water usage by address. Translating those meter readers records into billings and payments required significant time and resources. These operational tactics made the best of low technology situations with the manpower available; however, today's technology is moving at a rapid pace. Technology tools and software from just a decade ago have been thoroughly updated, streamlined and optimized.

Today, a prime example of the rapid improvement of water utilities technologies appears in remote control and management capabilities. Cloud-based applications and wireless communication technology have opened a new world of efficiency to water utility operators. Actions that once required several people, days to complete and trips to the field, are all now



managed from the comfort and convenience of an office. With wireless communication inside hardware tools such as smart water meters and remote shutoff valves, utility team members can engage in tasks such as turning on and off water at a specific address using a simple interface on their computers. Easy map displays, simple on and off settings and rapid response have made remote shutoff exceedingly straightforward. Further, reducing the operational demand of delivering water, remote water control management removes the heavy resource burden of larger deployment of manpower into the field for operating the valves. In India, the current scenario is to manage the network on a manual basis with limited integration of technology in the operations.

In many developed countries, the post pandemic worker shortage, minimizing the need for workers in the field is an added advantage for operations

managers. Employee Safety Included in Operational Efficiency In addition to the time and cost efficiency associated with tools such as remote water shutoff, these tools address the employee safety component of operational efficient water utility management. Today it's not just about doing more with fewer people.



The water meters are only a few of the ways water utility employee safety is threatened. By removing the employee from the field, those risks are completely eliminated. Simplify Control and Improve Safety with a Modest Investment Many utilities haven't yet taken advantage of new technology applications based on the incorrect perception that implementing remote water shut off is too costly. One point that many utilities overlook is that not all service connection sites share an equal portion of the ROI to incorporate remote shut off valves.



The Urban Water Management in Indian Metros will need to rapidly modernize in setting up strong resilient infrastructure in the form of Energy Efficient Motors, Pumps, Actuator operated Valves, Pressure loggers, Electro magnetic Flow meters, use of District Metering Areas, leak measurement techniques.

A large number of Vital water infrastructure in India managed by local Municipalities have taken up rejuvenation, upgradation , major repair and upgradation of water assets and leveraging technologies to build better delivery with better quality of water, more efficient delivery and reliable supply. Contamination has been a major issue in India due to intermittent supply and water stored at user ends in sumps often leading to contamination. Most of the water networks have yet to get mapped thru GIS mapping with real time monitoring. Water pipe line often get contaminated with dirty water leading to health issues. Mapping of water assets , monitoring of assets on a real time is key to ensuring good supplies.

IoT hardware devices including IoT-based smart water quality & quantity monitoring/detection sensors and smart water meters or water flow meters, smart water meters, flowmeters, level sensors, pump controllers (including pump monitoring sensors), pH sensors, and chlorine sensors are going to gain importance to monitor the network.

The ambitious Jal Jeevan programmes in India both in Rural and Urban areas is expected to make rapid changes in the water infrastructure.

About the Author



Sourav Daspatnaik
Managing Director,
Swach Environment Pvt Ltd

Nominated/Independent Director Positions:

Director, Nangloi Water Services (24x7 Water Supply PPP project under Delhi Jal Board, Govt of NCT Delhi) Director, Haldia Water Services (24x7 Water Supply PPP project under Haldia Development Authority, GoWB) Director, BTL EPC Ltd (Shrachi Group) Director, Hindustan Motors Ltd (CK Birla Group).

An engineering and management professional with 35 years of cross-functional experience, Sourav Daspatnaik is currently Managing Director, Swach Environment Private Limited. He also serves as the Director, Nangloi Water Services, established under PPP for supplying 24x7 water as a concessionaire of Delhi Jal Board, Government of NCT Delhi, Director, Haldia Water Services, established to provide 24x7 water services as utility under Haldia Development Authority, GoWB. He also serves as an independent director in several Indian companies and mentors social enterprises in the area of innovative and clean technologies for water supply and sanitation.

During his professional career spanning over 35 years, he has worked with leading organisations such as Tata Motors, Jamshedpur , Tata Steel Ltd, Mercer HR Consulting. He is the one of the founding members of National Water Alliance of India supported by Industry bodies and part of the India-Israel Innovation Bridge for commercially developing technologies thru start-ups. He has proven track record of building businesses along with operational excellence.

Daspatnaik has worked closely with different Governments both states and Central Government in India to put clean drinking water and waste water as the main agenda on the table for industry and Society. He has been a thought leader in the space of Water and Waste water and developing Indian and Global partnerships.

In the recent past, Daspatnaik has served as Chairman, Skill Development Task force and Co-Chair Infrastructure Committee of Bengal Chamber of Commerce and Industry and national board member for the National HRD Network, an apex body for human resources professionals. He was a founder director of the Indian Iron & Steel Sector Skill Council, under the NSDC. He has played a vital role in the launch of the India-Myanmar Solar Energy Forum and India Myanmar Trade & Commerce including Border Trade with a view to strengthen the bilateral trade ties between the two governments and people.

Daspatnaik has a bachelor's degree in mechanical engineering from the Birla Institute of Technology, Mesra, Ranchi and holds a master's degree in operations management from the Stevens Institute of Technology, New Jersey, USA.

Education:

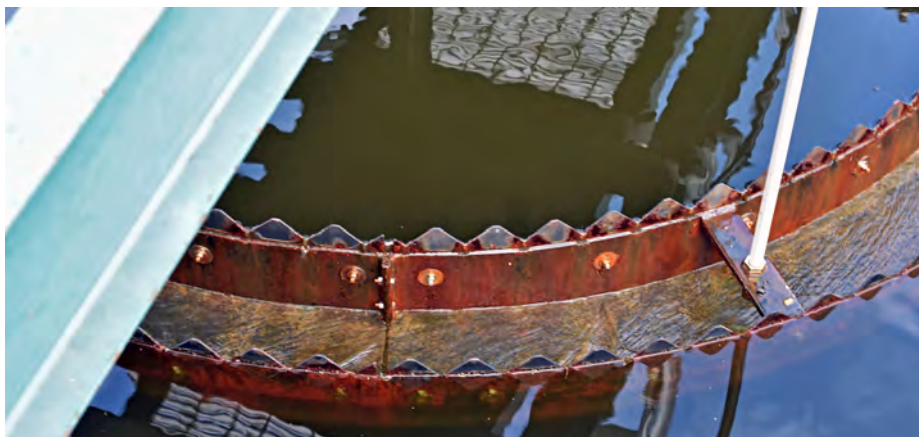
- M. S , Stevens Institute of Technology, Hoboken, NJ, USA
- B.E (Mechanical), Birla Institute of Technology, Mesra, Ranchi, India

Industry Positions:

1. India Chair UK India Smart Water Working Group
2. Vice Chairman, Working Group, Smart Water, India Smart Grid Forum, New Delhi.
3. Managing Committee Member, Bengal Chamber of Commerce and Industry, Kolkata
4. Founder Member Water Alliance India, New Delhi
5. Co-Chairman of Water Committee of Indian Chamber of Commerce
6. Governing Committee Member Consulting Engineering Association of India (CEAI) and Chairman Eastern Region.
7. Chair Environment and Climate Change National CSR Network, New Delhi
8. Member of FICCI Water Mission and Indian Sanitation Coalition

NORTHERN MICHIGAN TOWNSHIP HIGH STRENGTH WASTEWATER CHALLENGE

Christopher French, UK-Based Freelance Writer



When your small but vital Wastewater Treatment Plant (WWTP) has BOD (Biochemical Oxygen Demand) in excess of 700 milligrams per liter (mg/L) and had phosphorus levels as high as 20 mg/L, it pays to have a firm advocate of good clean effluent at the helm.

With its small population (358) but a fast-rising number of food and retail outlets serving the nearby City of Cadillac, this WWTP in the Northern Michigan Township of Haring was perhaps always destined for interesting times. Before the Haring Township WWTP was built in 2014/15, all Township wastewater was handled by the City of Cadillac (population circa 10,000), but when this agreement reached what turned out to be a landmark conclusion, professional consulting engineers Gosling Czubak Engineering Sciences, Inc. of Traverse City were called in to design a new, dedicated facility to serve the Township.

With its unusual blend of cities, villages, townships and counties, boundary agreements can sometimes get a little complicated in the State of Michigan. After prolonged, heated debates about whose responsibility it is to treat Haring Township's wastewater, a new state law was created to ensure that this type of dispute will never happen again.

Gosling Czubak pushed hard to find funding for the new, 135,000 gallons per day oxidation ditch treatment facility, helping the Township obtain loans from USDA Rural Development, plus \$900,000 in grant funds and \$1M from private business.

THE CHALLENGE OF HIGH-STRENGTH WASTE

"As well as securing the funding, we faced the challenge of high-strength waste and high-anticipated sewer bills due to the very small user

base", said Mark Hurley, Director of Engineering at Gosling Czubak Engineering Sciences, Inc.

"Following the decision that Cadillac would no longer take in Haring's wastewater, we had to get this thing built. We carried out a full study, asking bidders to hold their price for a year. Finally, when we had the finances in place, we went with Lakeside Equipment Corporation. Their ditches are tried and true; very dependable, and at a competitive price."

There at the plant in the very early stages, working closely with the original construction crews, has been Infrastructure Alternatives Inc. (IAI), who provide contract operations, maintenance and management services for numerous treatment facilities across the State of Michigan.

We always knew that we'd be battling against very high BOD and Phosphorus," said Nathan Filley, IAI's Lead Operator at the Haring WWTP.

"So, the choice of Lakeside's E.A. Aerotor Plant, which is particularly suitable for small communities, has proved a wise one. It has all the components of a system of a much larger scale, with extended aeration and mixing, combined with final clarification. Despite the ongoing challenges we face, it works very well for the flow and organic loading".

He added: "At most of the municipal treatment plants that we manage, BOD levels are around a standard 150-200 mg/L, so the average here at Haring of 700 mg/L is more concentrated due to the small number of homes. And with such a large amount of retail

(including Walmart, Home Depot) and multiple fast-food outlets, our wastewater intake is pretty unique”.

The Covid lockdown created new problems for all of us, with the vast majority of wastewater treatment plants seeing an increase in flow due to so many people having to stay at home. But at Haring Township, flows were more than cut in half. Even when the local fast-food outlets were allowed to reopen, restrictions meant take-away only, so with such little flow coming through the plant, nowhere near enough mixed liquor was going into the clarifier, meaning no blanket at the bottom, upsetting the balance.

Furthermore, the very low flow also meant that even when the plant's rotors ramped down to their minimum speed, the Dissolved Oxygen (DO) was well above its normal level of around 2.0 mg/L.

PROTECTING THE LOCAL ENVIRONMENT

“Cloudy discharge water was something I definitely did not want to see,” added Nathan Filley, for whom typical of IAI's philosophy, being the last line of defense in protecting the local environment was a primary driving factor in him wanting to work in the industry. Michigan is no stranger of course to great lakes, and Haring's treated wastewater is discharged into the popular, trout-rich Clam River.



He continued: “The small population means we don't receive much wastewater from the use of showers or washing machines, so to help with the high strength intake at the plant, Lakeside designed rotors with the capability of providing high oxygen transfer. And with the help of Gosling Czubak, we've also learned to manage the seasonal differences in levels that are brought on by the big changes in temperature during the year.”

He added: “Although the fast-food outlets are required to use grease traps, a fair amount of fats, oils and greases (FOG) still comes into our flow of 75,000 gallons per day. We usually keep one rotor on 24/7 and bring in the second rotor as a lag when the DO gets to around 0.25 mg/L below the setpoint – and shuts off at 0.25 mg/L above the setpoint.



Lakeside's E.A Aerotor Plant is constructed in a concentric, common wall design, with the outer loop utilizing the Closed Loop Reactor (CLR) process for extended aeration. Meanwhile, the inner area incorporates the proven Spiraflo Clarifier for final settling.

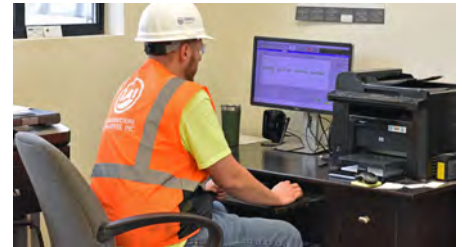
“I like to call it the ‘Bullseye design’, continued Mark Hurley from Gosling Czubak. “It's circular, with the ditches on the outside and the clarifiers in the centre. It's a winner. The plant can be run in series, or with one ditch and both clarifiers, so the Lakeside set-up gives us lots of flexibility”. Nathan Filley continued: “Ahead of what the Township hopes will see future investment in Haring, we have two reactors (each 220,000 gallons), with just one needed at the moment. Nobody could have really predicted the impact of the pandemic on our plant, so when the phosphorus rose to unprecedented levels, we tried turning the rotors down. I thought about how turning the rotors off at certain intervals might help the situation, so consulted leading wastewater equipment manufacturer representative, DuBois-Cooper in Plymouth, Michigan.

Speaking for DuBois-Cooper, Jay Vermilye, commented: “Infrastructure Alternatives, Gosling Czubak and Lakeside Equipment all have a wealth of experience in this field. It was great working with them, and as a team we came up with a plan to modify the operation of the Plant that addressed the issues that Haring faced due to COVID”.

Tom Larsen from Lakeside added: “Mixing is important in an oxidation ditch but mixing 100% of the time is not imperative. Sometimes, it is more important to take advantage of denitrification and alkalinity recovery, especially when both nitrification and chemical addition for phosphorus removal creates lower alkalinity. In a lightly loaded system, you can even get conditions required for phosphorus released for luxury phosphorus uptake (the storage of phosphorus within the biomass in the form of polyphosphate), further reducing the amount of chemical required.”

Eventually settling on cycles of seven hours on/one hour off, IAI called in local engineers, West Michigan. The change provided enough denitrification to stabilize pH levels at around 7.1 to 7.3 for most of the year.

The change provided enough denitrification to stabilize pH levels at around 7.1 to 7.3 for most of the year.



GOOD FOR THE HARING TOWNSHIP

Nathan Filley continued: “Rusty Sietsema and his team did a very professional job. We work closely with many skilled, specialist engineering companies in Michigan to help keep our treatment plants in top shape. We're now also saving on some energy costs, which is good for the Haring Township, and we no longer have to add soda ash, so that saves money and time, too.

Phosphorus levels remain the most challenging. When Gosling Czubak was designing the new plant, the Michigan Department of Environment, Great Lakes and Energy (EGLE) came out and set very stringent discharge levels to the Clam River. Overall, the change in the rotor timings has worked out better than any of us first thought. “The Lakeside equipment is quality design; very robust. It is easy to operate, maintain and get parts for.



About the Author



Christopher French
UK-Based Freelance Writer

Christopher French is an independent, UK-based freelance writer on water, wastewater and biogas, who founded POD Public Relations & Marketing Limited in 1996. Formerly at The Daily Telegraph, French regularly visits treatment/recycling sites in the United Kingdom, the Republic of Ireland, Europe and North America, interviewing plant managers, site operators, senior management and owners, as well as recording videos and capturing images. He is currently working with companies in the USA, England, Germany, Denmark and Australia – all of whom have customers worldwide.

URBAN AND INDUSTRIAL SUSTAINABLE WATER MANAGEMENT: A COLLECTIVE RESPONSIBILITY

Dr. Reena Mehta and Dr. Vandana Tripathi



INTRODUCTION:

The finite nature of water resources and their susceptibility to pollution, contamination, and climatic influences underscore the pressing need for strategic interventions to ensure sustainable usage. The Sustainable Development Goal's target 6.4, recognizes this challenge and demands increased water efficiency which is a way of easing water demand pressure/water user conflict by more effectively utilizing every unit of existing supply.

Urban areas, in particular, grapple with burgeoning demands, prompting the imperative adoption of water conservation practices capable of reducing consumption by up to one-third, concurrently mitigating surface and groundwater pollution.

According to **UN estimates 416**(1) million more people are anticipated to live in India's metropolitan areas by 2050. The accelerated rate of urbanization in conjunction with climate change may present new difficulties in terms of the growth of demand, the

strain on natural resources, and the expansion, management, and operation of vital infrastructure. Depleting groundwater tables, declining resource quality, and growing water shortages are all indications of growing gaps between the supply and demand for water.

In an era marked by rapid urbanization and industrialization, the sustainability of water resources has become a critical global concern. Recent instances in mid-2018, such as the water crisis in Shimla, India, and the prolonged water shortage in southern Johannesburg, highlight the pressing need for a comprehensive approach to water management.

The **National Water Policy**, as outlined in both 2002 and 2012, acknowledges the imperative for the development and administration of water resources to be guided by a national viewpoint. Its primary objective is to foster the sustainable development and conservation of limited water resources through an integrated and environmentally responsible approach.

According to the **NITI Ayog's Composite Water Management Index Report from 2018(2)**, India is experiencing its biggest water crisis to date. Democratic and equitable access to clean water needs to be discussed especially in the context of urban areas. With alarming predictions of a 40% shortfall in water supply compared to demand by 2030, urgent action is needed. This article delves into the challenges faced by urban and industrial

sectors and explores innovative solutions to ensure sustainable water management for a secure future.

Recognizing the need to **counter these challenges**, the Government of India (GoI) launched the **Smart City Mission (2015)** and the **Accelerating Growth of New India's Innovations (AGNI) Mission (2019)** to unleash the power of technological innovation against India's most pressing challenge, especially for water management in urban areas.

Smart City Mission emphasizes on **leveraging cutting-edge technologies like sensors, GIS, and AI to optimize water management** throughout the urban water cycle. GOI (under its **Jal Jeevan Mission for rural India, 2019**) has already **implemented a variety of sensors**, such as flow meters, groundwater level sensors, chlorine analyzers, pressure sensors, and pump controllers, to measure quantity, duration, quality, pressure, sustainability, and other pertinent aspects of water service delivery, as well as to provide operational efficiencies. This initiative needs to be expanded to the urban areas with a mission mode. This approach enhances operational efficiency, promotes water conservation, and ensures the sustainable use of water resources.

Metering and measuring water usage have proven effective in optimising consumption and identifying leaks in urban settings. The Pune Municipal Corporation's(3) integrated water resource management serves as a successful example of technology-enabled systems enhancing efficiency

and revenue growth. Water conservation is encouraged when **users pay for the amount they use**. Evidence from the UK(4) shows that installing meters reduces consumption as the findings indicated that by the time the customer receives their fourth metered bill, which comes about two years after meter installation, overall water consumption had decreased by 22%, or an average of 89 litres per household per day. Costs are automatically reduced because of water conservation, both immediately (by lowering operating expenses) and later (by delaying expensive system expansions).

According to **UNESCO (2023)** study industrial water withdrawal averages 17% of total water use in high-income countries but only 2% in low-income countries. Estimates for future water demand in industry and energy are not widely available(6). The water crisis impacts both the domestic and the industrial sectors. Indian business has a growing opportunity to make a significant contribution to the equitable, sustainable, and responsible management of water resources. The approach of 3M viz Mapping, Measuring, and monitoring of water consumption by industry is vividly discussed.

The **Niti Ayog Report on Water Neutrality For Indian Industry (July 2023)(6)** highlights the Water management techniques adopted by Indian cement industries such as Ambuja, Dalmia, and J K Cement. Water footprints have been drastically decreased by implementing heat recovery plants and switching from wet, water-intensive processes to dry ones. A crucial component of their efforts is community involvement and partnership with local bodies, which guarantees openness and confidence. Water storage, rainfall collection, and wastewater recycling are top priorities for many businesses. The next ten years should focus on sustainable goals including checking dams and replenishing groundwater. Beyond plant limits, environmentally friendly methods are being used to address water needs for horticulture, industry, and household use. This community-focused strategy demonstrates industry-wide dedication to sustainable long-term use of water and best practices.

Mandatory water audits for companies utilizing groundwater or having extensive water usage should be enforced. Industries can adopt various approaches, including equipment modification, water-saving devices, recycling, reverse osmosis, and effluent treatment plants, to reduce their water footprint.

While governments and the corporate sector play a crucial role in water management, the responsibility shouldn't rest solely on their shoulders. **Civic engagement** is crucial to develop sustainable water management models.

Individuals like **Mr. Rajendra Singh**, popularly known as the '**Waterman of India**', helped villagers take charge of water management in their dry areas of Rajasthan and built water conservation structures to collect rainwater for the dry seasons. **Ramveer Tanwar**, a young mechanical engineer turned conservationist, has shown that impactful change can be initiated at the grassroots level. Through his efforts, more than 80 public water bodies have been rejuvenated. **Nimal Raghavan** left his lucrative job in Dubai and made the restoration of water bodies in India, the mission of his life. Since 2019, through his team of volunteers, he has raised funds and revived more than 140 lakes, rivers, and ponds across Karnataka, Andhra Pradesh, Uttar Pradesh, Haryana, and Tamil Nadu. Women collectives like Jal Saheli's (Women Water Warriors) of Bundelkhand have shown a promising future by conserving water ponds, helping build a network of check dams, and undertaking rainwater harvesting to recharge water bodies in a drought prone area. Recognizing and glorifying such water warriors is essential to inspire citizens to contribute to the cause and create more future leaders.

REPORT

1. World Urbanization Prospects - Population Division - United Nations
2. Composite Water Management Index 2.0.pdf (niti.gov.in)
3. Water Distribution | Pune Municipal Corporation (pmc.gov.in)
4. Water meter reduces consumption | University of Southampton
5. EY-ASSOCHAM report - June 2019 (spml.co.in)
6. Gujarat CII-Triveni Water Institute (niti.gov.in)

CONCLUSION

The magnitude of the water crisis demands national initiatives and collaborative efforts. Policies that promote sustainable water practices, coupled with robust enforcement mechanisms, are essential. Educational programs can raise awareness about water conservation and the importance of responsible water usage. Public-private partnerships can facilitate the implementation of innovative solutions, with businesses contributing to sustainable practices in water management.

The journey towards water sustainability necessitates a collective effort involving technological innovations, policy interventions, and individual responsibility. Recognizing and celebrating successes while learning from challenges will pave the way for a future where water is not a source of conflict but a catalyst for harmony and growth. By fostering a sense of ownership and responsibility among individuals, industries, and states, we can ensure a sustainable and secure water future for generations to come.



About the Author



Dr. Reena Mehta

Dr. Reena Mehta is a Professor at K J Somaiya Institute of Management and has extensive experience of 23 years in academia, complemented by 8 years of corporate exposure. Dr. Mehta brings a unique blend of theoretical knowledge and practical insights into her teaching and research endeavors. She has a Ph.D. in CSR. She has presented and published numerous papers in reputable National and International Journals, apart from her academic contributions. Dr. Mehta has actively engaged with various leading organizations by conducting Management Development programs. Noteworthy among these organizations are INS Hamla, Reliance Power, LIC, PowerGrid, Department of Atomic Energy, Indian Police, and Insurance Institute of India. Her expertise lies in Corporate Social Responsibility, Ethical orientation in organizations, and Corporate governance. Dr. Mehta's reputation extends beyond national borders, as she has been serving as a visiting faculty member at Peter the Great St. Petersburg Polytechnic University in Russia for the past five years. Through this role, she has had the privilege of engaging with international students and sharing her expertise and perspectives on various management topics.



Dr. Vandana Tripathi

Dr. Vandana Tripathi is an expert faculty member specializing in the areas of Corporate Social Responsibility (CSR), Environmental, Social, and Governance (ESG), and social entrepreneurship. With an extensive academic and professional background, Dr. Vandana has made significant contributions to the field through research and teaching. She holds a Ph.D. in Management, with a focus on CSR and sustainability. She has pursued her master's from TATA Institute of Social Sciences, Mumbai & Erasmus University Rotterdam, The Netherlands. She has published numerous scholarly articles in journals, presenting novel insights and frameworks that have shaped the understanding and practice of CSR and ESG. As a dedicated educator, Dr. Vandana has taught courses on CSR, ESG, and social entrepreneurship at leading universities and business schools. In addition to her academic endeavors, Dr. Vandana has served as a board member (Uplift Mutuals) and advisor to various NGOs (DORAI Foundation, SEAL Ashram, Jeevan Aadhar Transformative Aftercare Services etc) advising them on CSR and ESG strategies and helping them develop sustainable business models. She is currently a faculty at K J Somaiya Institute of Management.

WATER MONITORING: ESSENTIAL FOR SUSTAINABILITY

Mohammed Abdul Rahman, CEO, Sahara Industry

Water is a crucial element for sustaining life. The swift expansion of population, urbanization, irrigation, and industrialization has exerted immense pressure on water resources. The combined effect of escalating usage of this invaluable natural resource has given rise to water scarcity in numerous regions across the globe with several countries facing difficult challenges. In India, almost 44% of the population is facing extreme water stress, reported by the Niti Aayog. Moreover, climate change has contributed to alterations in the hydrological cycle within the nation. Therefore, safeguarding this scarce resource requires adept and efficient management based on a sound scientific methodology, ensuring its sustainable development.

India, which has become the most populous nation in the world, is projected to have over 800 million people living in urban areas by 2050, from the current 518 million people. As the resources are limited, expanding cities have been facing severe crises concerning the availability of clean water, pollution of water bodies, the increasing gap between the demand and supply of water, and the widening gap between the volume of wastewater generated and the installed capacity of wastewater treatment plants.

The connection between water supply and wastewater management is closely linked, requiring the safeguarding of water sources to prevent contamination and ensure their suitability for drinking. In India, a significant challenge arises concerning municipal wastewater generation and the available treatment facilities. According to the Central Pollution Control Board (CPCB) report, urban areas in the country generate 72,368 million litres per day (MLD) of sewage, while only 1,469 sewage treatment plants (STPs) with a total treatment capacity of 31,841 MLD are available. This indicates an absence of facilities to treat more than 40,500 MLD (56%) of the generated sewage.

This figure may be even higher, as not all sewage treatment plants are operating at their designed capacities, aggravating the issue further. The underutilization of existing treatment infrastructure highlights the urgent need for improved efficiency and expansion of wastewater treatment and management facilities to address the growing challenges posed by urban wastewater generation in India.

Traditionally, cities have been designed and operated with a linear flow of resources to accommodate the needs of a growing urban population. However, there is an increasing recognition that the economically viable reuse and recycling of treated wastewater present attractive options for addressing the gap between water demand and supply. Advancement in tertiary treatment technologies makes it feasible to treat wastewater to a level where it can be safely reused and recycled. Despite the potential benefits, concerns exist regarding the implications of large-scale recycling of treated wastewater, particularly concerning emerging contaminants.

Recent recognition suggests that engineered groundwater recharge can simultaneously address flood risk and water scarcity. Urgent efforts are needed to develop new materials, processes, and technologies for efficient water and wastewater treatment, recycling, and the removal of residual pollutants such as emerging contaminants and nutrients. Consequently, appropriate remedial measures should be implemented to reclaim polluted water bodies and ensure a safe water supply.

In present scenario with emerging challenges, there is an immediate need for efficient monitoring and surveillance of water quality to safeguard public health and prevent environmental degradation. The technologies related to water supply should be integrated with the planning, designing, and operation of water infrastructure systems to minimize water

consumption, reduce leakage, and enhance water use efficiency optimally.



Effective water monitoring plays a crucial role in attaining production objectives and ensuring sustainability.

WATER MONITORING



Water has become a passionate subject, with corporates across the globe establishing ambitious standards and metrics for water efficiency as their key corporate initiatives. Simultaneously, there is a growing interest among consumers as well who increasingly prioritize water quality and sustainability over the cost of it. This shift in consumer preferences is increasing the cost of ensuring water quality for water utilities and service providers.

There are tools and processes to ensure water monitoring in various settings. Advanced sensor technologies, data analytics, and remote sensing methods enable accurate and real-time monitoring of water quality and usage. Some of the key initiative that helps in effective monitoring is:

TECHNOLOGY & DATA ANALYTICS

Emerging technologies have surfaced to monitor and address both established and newly identified contaminants. Concurrently, the utilization of data analytics tools is on the rise, aiding in the evaluation of trends and predictive analysis. These analytical technologies, coupled with data visualization tools, play a crucial role in establishing performance indicators. However, the tracking and analyzing of data should serve a purpose. Collecting data merely for the sake of collection is inefficient, and data lacks utility without interpretation. Advance sensors, remote sensing, and data analytics play key roles in real-time monitoring of water parameters such as pH, turbidity, dissolved oxygen, and contaminant levels.

Ph Meter for
Water Quality
Monitoring



Advanced sensors provide real-time data on various water parameters, including pH, turbidity, and chemical composition. These technologies enable continuous monitoring and early detection of anomalies. Effective monitoring helps identify potential health risks associated with waterborne diseases and contaminants. Timely detection allows for swift intervention, preventing the spread of waterborne illnesses and safeguarding the well-being of communities.

Satellite-based remote sensing allows for large-scale monitoring of water bodies. It provides insights into water quality, changes in land use, and the identification of potential pollution sources.

These sensors measure the surface area, volume, and water levels of these bodies, enabling to track changes over time. This information helps in understanding water availability trends, identifying water-stressed regions, and making informed decisions for water allocation and distribution. Utilizing remote sensing technology helps in identifying water pollution and tracking their spreading sources. Specialized sensors enable the identification and monitoring of pollutants such as oil spills, chemical discharges, and sediment runoff into water bodies. Early detection contributes to mitigating the environmental impact of pollution in water sources to take remedial actions and minimizing harm to the aquatic ecosystems.

The use of data analytics helps process vast amounts of information to analyse the changing trends, suggest for predictive modelling and the identification of patterns that may indicate emerging water quality issues. Internet of Things (IoT) and Big Data analytics can be used to develop an automated water quality monitoring and testing system that can handle the massive flow of water data generated by smart sensors spread everywhere. Data analysis can also help in improving our understanding of the system being measured and drives management actions.

These technologies enable early detection of pollution, efficient management of water treatment processes, and the assessment of environmental impacts. Data visualization tools are increasingly employed to analyze trends, model scenarios, and predict future water-related events. These technologies aid in decision-making processes by providing a clear and comprehensive understanding of water systems. Overall, water monitoring technology is instrumental in ensuring the sustainable management of water resources, addressing pollution concerns, and supporting informed decision-making for water-related challenges.

Water resources are essential for life on Earth, and monitoring their sustainable management is critical for the well-being of humans, economy and the environment.

GROUNDWATER EXPLORATION

Groundwater is a crucial source of water supply, especially in India. Groundwater serves as a primary source of drinking water for both rural and urban populations.

Many villages and towns depend on wells and borewells for their daily water needs. Farmers heavily rely on groundwater for irrigation, especially in regions where surface water availability is limited accounting for over 80% of the total groundwater extracted.

Remote sensing for water monitoring helps in identifying potential groundwater reservoirs by mapping subsurface geological structures and identifying areas with high groundwater potential. This valuable information is instrumental in promoting sustainable groundwater management and preventing the overexploitation of this essential resource.



FRP-PRESSURE-VESSEL

WATER IS FIT FOR PURPOSE

Water monitoring is crucial to ensuring that water is suitable for its intended purpose. This involves implementing appropriate treatment processes and monitoring measures to meet the specific quality requirements for various uses, such as drinking, agriculture, industrial production, or environmental preservation. Ensuring water fit for purpose is vital in optimizing its utility and safeguarding the health of ecosystems, human populations, and industrial operations.

There is a growing consensus that all water is interconnected, emphasizing the need for utilities and industries to synchronize their goals, recognizing their shared reliance on this extraordinary resource. Despite this unity, water serves various purposes, each with permissible quality standards or limits for contamination. It is crucial to treat and monitor water with respect to its intended use, ensuring that resources, time, energy, and labor invested in treatment are optimized for specific purposes.

SAHARA INDUSTRY: CONTRIBUTING WITH INNOVATION

Sahara Industry, the prominent name as innovative and advance water treatment solution provider in India, is taking the lead in addressing country's diverse water challenges. With a successful track record of executing hundreds of projects spanning in a legacy of over two decades, the company has earned strong reputation and trust from utilities, industries, institutions and others. As the company strive to provide comprehensive solutions for water and wastewater treatment, water analysis and monitoring, plant operation and maintenance and other related solutions tailored to meet the diverse needs, the commitment to excellence and customer satisfaction has garnered recognition and praise in the industry.



Investing more than 30% of our sales revenue to research and development (R&D) to foster innovation and provide best water treatment solution to our customers.

Drawing from extensive experience in diverse water projects, Sahara Industry employs advanced technology and manufacturing solutions to develop state-of-the-art water and wastewater treatment and monitoring solutions in line with global standards. The company is certified with ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018, solidifying its reputation as a respected brand in the industry, providing top-notch equipment, filtration and monitoring systems. Sahara Industry has received remarkable acclaim and accolades from industry associations and the media fraternity, thanks to its market-oriented approach driven by modern systems and processes.

WAY FORWARD

Effective water monitoring is essential in the pursuit of sustainable and resilient water systems. From assessing water availability to monitoring water quality and detecting pollution sources, water monitoring provides valuable data to make informed decisions for sustainable water resource management. As we navigate a future with increasing demands on water, continued innovation in water monitoring will be paramount in ensuring a harmonious coexistence with this invaluable resource. By harnessing advanced technologies and embracing comprehensive monitoring strategies, we can effectively tackle water scarcity, environmental issues, safeguard public health, and enhance the management of water resources.



About the Author



Mohammed Abdul Rahman
CEO, Sahara Industry

The young entrepreneur, equipped with marketing and finance degree, has achieved remarkable success in transforming the company into a prominent manufacturer of advanced and high-quality water and wastewater treatment solutions. His contemporary business approach, combined with technological innovations and dynamic leadership, has propelled his group companies to thrive efficiently, achieving a turnover exceeding INR 1200 million.

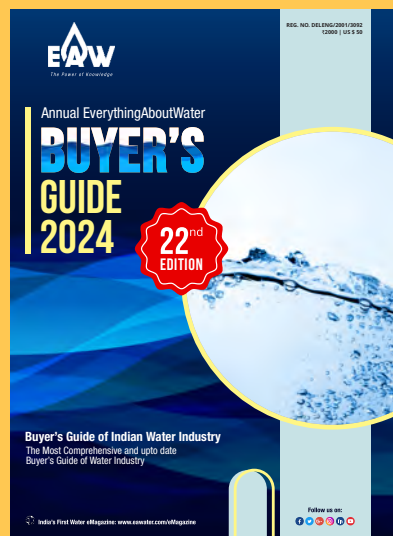
GET LISTED HERE! ▶▶

Send your Company and Product details at: nisha@eawater.com

WEBSITE

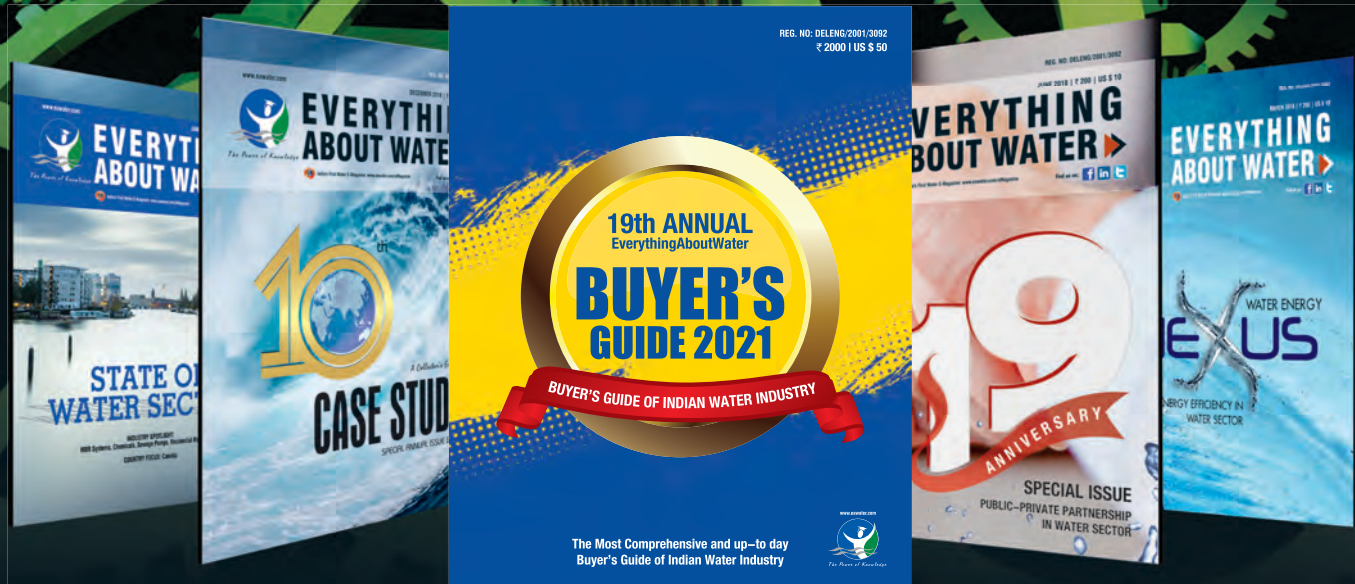
www.eawater.com

Follow us on:





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 facing 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:



HOW FOOD AND BEVERAGE COMPANIES CAN IMPROVE WATER EFFICIENCY WITH THE RIGHT PUMP

Adeel Hassan, Product Manager at Watson-Marlow Fluid Technology Solutions

As food and beverage companies strive for better water management in their production processes, selecting the right pump has become increasingly important. If a company can reduce its water usage then less water needs to be treated, which produces cost savings while also meeting environmental and sustainability standards.

By 2030 demand for water will outstrip supply by 40% as the world's growing population drives water consumption, according to McKinsey, a global management consultant firm. Climate change is also putting pressure on water availability.

Food and beverage production requires large volumes of water, which is not as cheap as it once was in some countries, while water is a scarce resource in other parts of the world. One way a food and beverage company can address its own water consumption is to consider if its existing pump, or one it is about to purchase, has these capabilities:

- Accuracy, which avoids chemical overdosing and achieves cost savings
- Precise dosing under changing process conditions
- Ability to pump dewatered waste sludge
- Simple pump design for ease of cleaning

MORE COMPANIES ADOPT WATER REUSE

When agricultural produce enters a manufacturing plant for processing, it uses vast volumes of water which must meet specific requirements for different uses such as washing and preparation; pasteurisation; cleaning of equipment; steaming and sterilisation, and as an additive or stabiliser.

To reuse water in food production, it is necessary to treat it, which involves a significant energy requirement, along with building the necessary infrastructure, chemical usage and labour. At the end of the process, a waste stream is also produced, in the form of sludge, which can pollute the environment if poorly managed.

For this reason, wastewater must undergo high levels of treatment prior to discharge. Companies that opt to treat wastewater onsite, rather than through a trade effluent service, are expected to meet ever-tightening environmental standards before emission to watercourses.

Water reuse is becoming increasingly popular in the food and beverage sector, with companies adding new treatment trains to minimise use of municipal water and reduce abstractions from, and discharges to, the environment.

ACCURATE DOSING MAKES A DIFFERENCE

In the competitive food and beverage market, standards for health and safety and environmental compliance are of critical importance. But choosing the right chemical dosing pump can mitigate risks from breaches in health and safety and compliance.



Eurial, the France-based milk division of the AGRIAL cooperative group, supplies dairy products to shops, catering and commercial companies. At Eurial's Quincampoix dairy in Normandy, a single Qdos CWT

(Conveying Wave Technology) dosing pump now treats the 300m³ of water needed to feed the entire plant daily after it replaced a diaphragm pump.

The site has its own well for its supply of running water, which is used in the production process and for cleaning of equipment. This water requires chlorination for disinfection and daily quality control. Eurial relies on the Qdos CWT peristaltic pump, from Watson-Marlow Fluid Technology Solutions (WMFTS), for accurate and reliable chlorine dosing.

The dosage is from 0 to 800 mL/h depending on the pump settings and the drawing flow rate of the installations with a back pressure varying from 3 to 4 bar. The pump adapts its flow rate automatically according to the water consumption.

Previously, Eurial experienced problems with a diaphragm pump, which was sensitive to the aggressiveness of chlorine and led to de-priming, clogged valves and clogged suction pipes. As a result, the dosage was not constant and regularly generated non-conformities regarding the chlorine level. In the first half of 2022, Eurial observed 40 non-conformities and 32 interventions, an average of 5.3 interventions and 6.7 non-conformities per month.

Qdos peristaltic chemical metering pumps provide highly accurate dosing by enabling precise, incremental adjustments. They can handle applications requiring dosing at 0.1 mL/min, right up to 2,000 mL/min. By only using what is needed, chemical quantities and costs are reduced. The Qdos range of pumps requires virtually no ancillary equipment and the patented pumphead can be replaced quickly and easily without tools, for fast and safe maintenance.



Since adopting the Qdos CWT, Eurial has succeeded in obtaining FSSC 22000 certification, a scheme for Food Safety Management Systems.

By adopting best-practice for process water and wastewater treatment and plant cleaning, and by identifying opportunities for water efficiency at every stage of the process, producers can move towards more sustainable practices. As new process priorities and requirements come into operation, Qdos dosing pumps have the flexibility to meet a range of requirements including new types of chemicals, value for money, reliability and ease of maintenance.

Across the world, legally binding environmental regulations, such as the European Water Framework Directive, the US Clean Water Act, and the Australian National Water Initiative are in place to protect rivers, lakes, estuaries, coastal waters, and groundwater from pollution.

Food and beverage companies in breach of water quality requirements risk prosecutions, large fines and even having their discharge permits revoked. Appropriate chemical treatment of process water and wastewater is fundamental to the safe and efficient operation of all food and beverage production plants.

EFFICIENT CLEANING

It is essential that all machinery, water and wastewater systems are accurately maintained and cleaned with trained personnel that follow procedures and ensure effective operating processes. The most efficient plants choose a combination of preventative, proactive, and predictive approaches and WMFTS designs dosing equipment to these high standards. Its pumps are easy to install, operate, and maintain and will help minimise the procedural load and the risk of human error.

Pumps that are easy to clean are also important in striving for better water efficiency. Apart from agriculture, the biggest water use in the food industry is the cleaning of processing equipment/plants and food products, which can account for up to 70% of a factory's water usage, but Clean In Place (CIP) is one way of reducing water usage for food and beverage companies.

Using a Certa 200 Sine® pump and Aflex FaBLINE hose, from WMFTS, has not only increased yield for Padstow Cheese Company in England, but also reduced the amount of time and water used in cleaning.

Lawrence Reynolds, of Padstow Cheese Company, said: "The Certa pump is so easy to clean, unlike our previous centrifugal pump, which was a nightmare. In addition, the smooth construction of Aflex FaBLINE hoses means we can flush the cleaning products through and rinse out very easily."

REDUCING FOOD WASTE WITH LESS WATER USE

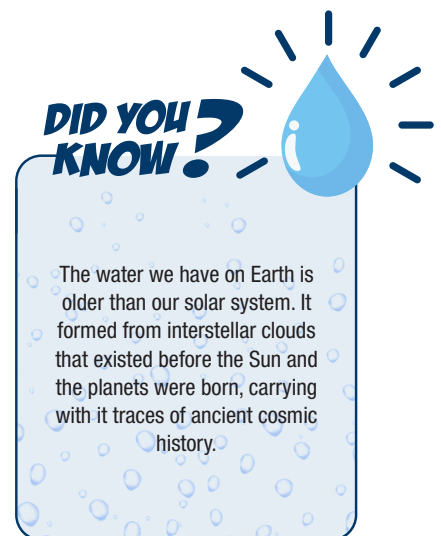
Peristaltic pumps from WMFTS have also been integrated into sustainable solutions for steam potato peeling provided by TOMRA Food which reduces water usage, water treatment and food waste.

The TOMRA Dry Peel Separator (DPS) uses a Bredel hose pump as a dry-waste pump which enables food processors to reduce water usage and recover the potato skin and starch for use in animal feed or anaerobic digestion (biogas).

Eamonn Cullen, Market Manager Peeling at TOMRA Food, says Bredel plays a key role in TOMRA's sustainable solution for an efficient, reliable and profitable potato peeling solution.

He said: "There are a number of advantages with using the Bredel hose pump. The ability to pump peel without the addition of water is one. The majority of potato processing facilities will collect all steam peeled skin in dry form. Some processors still need to use water in the peel separation brush machines, but this is reducing every year. It has become an important key performance indicator for the food industry to reduce water usage, to reduce food waste and to improve sustainability.

Collecting the steam peeled skin and starch dry enables this material to be used in other parts of the value chain. It can be farmers feeding animals or anaerobic digesters changing biomass into biogas. These opportunities help maximise the utilisation of every part of the potato and make every potato count."



The water we have on Earth is older than our solar system. It formed from interstellar clouds that existed before the Sun and the planets were born, carrying with it traces of ancient cosmic history.

CONCLUSION

Food and beverage companies are achieving better water management with water reuse, by adding new treatment trains to minimise use of municipal water and reduce abstractions from, and discharges to, the environment.

During water treatment, selecting the right chemical dosing pump can mitigate risks from breaches in health and safety and compliance. Using a peristaltic metering and dosing pump can achieve not only chemical cost savings through its accuracy, but also contributes to better water conservation for food and beverage companies. A Qdos CWT peristaltic pump is being used by Eurial at one of its dairies for accurate and reliable chlorine dosing to treat the 300m³ of water needed to feed the entire plant daily.

CIP can also help reduce a food and beverage company's water use during cleaning. A Certa 200 Sine pump and Aflex FaBLINE hose have helped to increase yield for Padstow Cheese Company in England, but also reduced the amount of time and water used in cleaning.

Finally, the TOMRA Dry Peel Separator (DPS) enables food processors to reduce water usage as the Bredel hose pump, which is used as a dry waste pump, can pump peel without the addition of water.



About the Author

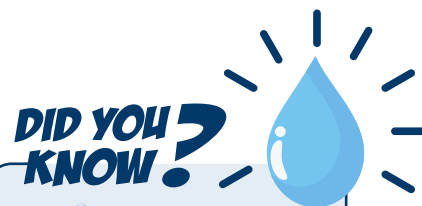


Adeel Hassan
Product Manager at Watson-Marlow Fluid
Technology Solutions

As Product Manager for Watson-Marlow Fluid Technology Solutions, Adeel Hassan oversees the Qdos range of chemical metering pumps, widely used in water treatment plants globally. He is actively involved in understanding the challenges faced by customers and leads product development initiatives to drive efficiencies across the sector. In addition to extensive product management experience for several leading manufacturers, Adeel has spent time in the Middle East working on automation projects for the water treatment industry. He holds an MSc in Technology and Innovation Management from the University of Sussex, UK.

About Watson-Marlow Fluid Technology Solutions

Watson-Marlow Fluid Technology Solutions (WMFTS) is a world leader in manufacturing peristaltic pumps and associated fluid path technologies for the life sciences and process industries. WMFTS is a wholly owned subsidiary of Spirax-Sarco Engineering plc, with operations in 42 countries. Further information can be found at www.wmfts.com



The water we have on Earth is older than our solar system. It formed from interstellar clouds that existed before the Sun and the planets were born, carrying with it traces of ancient cosmic history.



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

EverythingAboutWater

Annual

BUYER'S GUIDE

Directory.

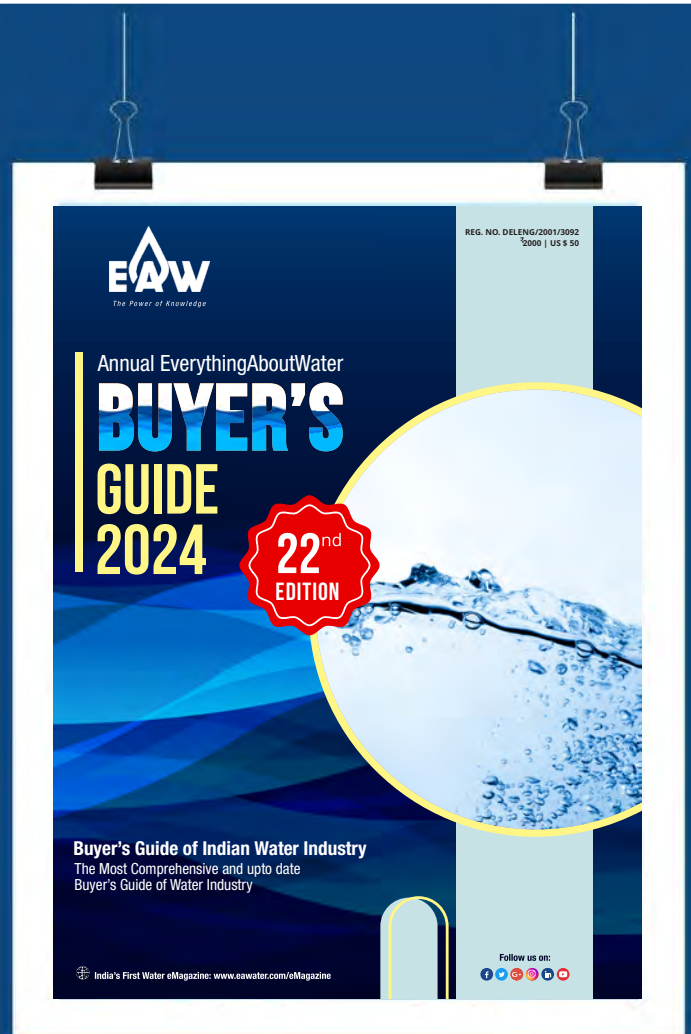
India's No. 1 destination for suppliers.

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

A1/152, IGNOU Road, Neb Sarai,
New Delhi 110 068, INDIA
M.: +91 96500 59996
E: enquiry@eawater.com

www.eawater.com

ORP – A BETTER WAY TO ACCESS SWIMMING POOL WATER QUALITY

In India swimming pool water health is mostly measured in terms of residual chlorine. A 0.5 – 1.0 ppm residual chlorine (FRC) are standards everywhere depending whether ozone is being used as a disinfectant (for ozone FRC is 0.5 ppm only). The concept followed is that, chlorine being an oxidising agent will have a residual in the pool only when all the oxidizable materials (bacteria and organics) are removed from the pool water. Otherwise it will still be consumed in the water.

This concept though theoretically correct gives a very wrong indication on the health of the pool water. World Standards are changing now, not only in swimming pools but also in water treatment.

FREE AND COMBINED CHLORINE

To know why, we need to look briefly into the actions of chlorine in water. When chlorine in any form is introduced into pool or spa water, it forms free chlorine (HOCl), which is an excellent bactericide $\text{Cl}_2 + \text{H}_2\text{O} \rightarrow \text{HOCl} + \text{HCl}$

Free chlorine, however, readily combines with organic waste materials that are present in the water (such as body perspiration, urine, cosmetics, hair sprays or other ammoniated compounds) to form combined chlorine compounds called chloramines, chloranes, which are poor bactericides and have obnoxious properties. By now, everybody in the pool and spa industry is or should be familiar with chloramines. However, the mechanisms of formation and destruction of chloramines generally are poorly understood in the industry.

When the concentration of Nitrogen /ammonia compounds increases in the water, there is a high probability that the entire chlorine will get converted to mono-chloramines. At pH 7-8 the formation of mono-chloramines is within seconds. Mono-chloramines are very poor bactericides and their activity on micro organisms is more than 100 times lower than free residual chlorine. When we add more chlorine into the pool, these mono-chloramines get converted to di-chloramines which have even lower bactericidal actions. It is this di-chloramines that causes the typical chlorine smell, burning of eyes that swimmers often complain.

During break down chlorination (super chlorination) when more chlorine is added, these di-chloramines and mono-chloramines get converted to non smelling nitrogen compounds. These super chlorination levels are about 10 times the FRC levels of normal pools.

TWO FORMS OF FREE CHLORINE & pH OF THE WATER:

The fact is that there are two forms of free chlorine

- The molecular form, hypochlorous acid, HOCl, which is the fast-acting free chlorine.
- The linic form, OCl-, which is a slow-acting sanitizer.
- In fact HOCl is a weak acid.

THE pH OF THE WATER CONTROLS THE CONCENTRATION OF BOTH FORMS OF FREE CHLORINE IN WATER

The concentration of HOCl, the fast-acting sanitizer, decreases very rapidly with increasing pH in the range of interest for pools and spas (7 to 8).

- At a pH of 7.0 about 75 percent of the free chlorine is HOCl.
- At a pH of 7.5, it is about 50/50 HOCl and OCl.
- At a pH of 8.0, it is about 20 percent HOCl and 80 percent OCl.

Now HOCl is 80 to 300 times more effective than OCl. So when the pH of the water increases (as often in swimming pools) the effectiveness of chlorine comes down drastically HOCL is 100 times more effective than OCL against cysts and 60-70 times more effective against E Coli. So you can imagine how much low the effectiveness of chlorine is at higher pH.

The DPD test kit (chlorotex color indicator) measures the residual total free chlorine readings, which combine both HOCl and OCl-. That is why it cannot be totally depended upon for pool water maintenance.

DPD test kit and other free chlorine test kits do not differentiate between the two forms of free chlorine. Therefore, they cannot show the decrease in HOCl concentration when the pH is increased. This is absolutely no problem if the pH remains where it should be – at 7.4 to 7.6. Therefore controlling pH in chlorinated pools is the key to good maintenance.

ISSUED IN PUBLIC INTEREST BY
V.BARATHARAJ

OZONE TECHNOLOGIES & SYSTEMS INDIA PVT LTD
262 II MAIN RD, NEHRU NAGAR KOTIVAKKAM OMR
CHENNAI 600096

Tel: 44 4211 8266. e-mail: otsilozone@gmail.com
web: www.otsil.net

BLOOD FALLS OF ANTARCTICA:

UNRAVELLING THE MYSTERIES OF NATURE'S CRIMSON WONDER



In the desolate, frozen landscapes of Antarctica, where temperatures plunge to unthinkable depths and icy winds whip across barren terrains, there exists a peculiar phenomenon that captures the imagination and fascination of scientists and adventurers alike – the mysterious "Blood Falls." Nestled within the Taylor Glacier in the McMurdo Dry Valleys, this enigmatic natural wonder beckons explorers to unravel its secrets.

THE MARVEL OF BLOOD FALLS

Imagine a waterfall of vivid crimson, a stark contrast against the pristine white surroundings of Antarctica. This surreal sight is not a scene from a dystopian novel but an actual occurrence at the Taylor Glacier. Named "Blood Falls" due to its striking appearance, the water gushing from the glacier carries a deep red hue that mystifies those fortunate enough to witness it.

THE SCIENCE BEHIND THE CRIMSON CASCADE

The origin of the blood-red water lies in the depths of the glacier, where an ancient subglacial lake has been sealed away for millions of years. Rich in iron, the water interacts with the oxygen-enriched air upon reaching the surface, triggering a unique chemical reaction. The iron oxidizes, turning the water into a rusty red color that creates an otherworldly spectacle against the stark Antarctic backdrop.

A PORTAL TO THE PAST

One of the most astonishing aspects of Blood Falls is its connection to Earth's prehistoric past. Researchers have discovered microbes in the briny waters that have been isolated for thousands of years, surviving without sunlight or oxygen. These extremophiles, adapted to the harsh conditions beneath the glacier, provide scientists with valuable insights into the potential for life in extreme environments beyond our planet.

EXPEDITION INTO THE UNKNOWN

Over the years, various scientific expeditions have ventured to Blood Falls, equipped with cutting-edge technology to unlock its secrets. Ice-penetrating radar, sediment coring, and DNA analysis have all played pivotal roles in piecing together the geological and biological puzzle of this unique phenomenon.

ENVIRONMENTAL SIGNIFICANCE

Beyond its mysterious allure, Blood Falls serves as a natural laboratory for scientists studying climate change and the dynamics of subglacial ecosystems. The conditions that allow microbial life to thrive in isolation may hold clues about the potential for life in similar environments on other icy planets or moons within our solar system.

FINAL INSIGHTS

In the heart of Antarctica's frozen wilderness, Blood Falls stands as a testament to the Earth's geological and biological wonders. Its mesmerising crimson cascade, fueled by ancient processes and inhabited by resilient microbes, continues to captivate the curious minds of scientists and adventurers alike. As the icy continent guards its secrets with an unwavering grip, Blood Falls remains a living, flowing enigma—a reminder that even in the harshest corners of our planet, nature continues to paint breathtaking masterpieces that challenge our understanding of the world.



T E N D E R

Sewage Treatment Plant Sitc of Sewage Treatment Plant of 50 Kld Capacity In Ward No 119 Under Najafgarh Zone

Authority	Engineering, Plants and Machinery tenders		
Location	Delhi, Delhi		
Bid Open Date	20 Dec 2023	Tender Value	57.51 Lac
Doc Collection Date	21 Dec 2023	FTID	231209462980

Providing and Laying Pumping Main From Sewerage Treatment Plant Stp Lawspet to Airport Campus, For Conveying Secondary Treated Effluent Water Stew For Horticulture/Fire Fighting Purpose Phase I.

Authority	Miscellaneous tenders		
Location	Pondicherry, Pondicherry		
Bid Open Date	15 Dec 2023	Tender Value	47.49 Lac
Doc Collection Date	15 Dec 2023	FTID	231209461870

Repairs Maintenance to Dg Sets Pumps Water Treatment Plant Earthing Infrastructure of Lightning Arrestors of Various Buildings and Repairs Replacement of Internal Wiring Fittings Fixtures of Otm Accommodations at Cijw School Vairengte and Lailap

Authority	Electrical and Electrical Equipment tenders		
Location	Mizoram, Vairengte		
Bid Open Date	02 Jan 2023	Tender Value	48 Lac
Doc Collection Date	30 Dec 2023	FTID	231209466100

Construction of Drain at Daibakipur Water Treatment Plant Under Uidssmt Within Englishbazar Municipality, Malda.

Authority	Construction, Infrastructure, Civil Work tenders		
Location	West Bengal, Englishbazar		
Bid Open Date	26 Dec 2023	Tender Value	14.20 Lac
Doc Collection Date	23 Dec 2023	FTID	231209473200

Repairing of Sewage Treatment Plant Installed at Radhanager Beach, Swaraj Dweep

Authority	Scientific Equipments tenders		
Location	Andaman & Nicobar, Port Blair		
Bid Open Date	13 Dec 2023	Tender Value	1.50 Lac
Doc Collection Date	13 Dec 2023	FTID	2312094103850

Eluda Construction of 0.15 Mld Sewage Treatment Plant With Sbt Technology at Jagananna Mig Township in Sanivarapupeta Village Near Eluru Municipal Corporation Including two Years Operation and Maintenance and Defect Liability Period.

Authority	Manpower, Security Guard Supply tenders		
Location	Andhra Pradesh, Eluru		
Bid Open Date	26 Dec 2023	Tender Value	1.34 Lac
Doc Collection Date	26 Dec 2023	FTID	2312094120550

T E N D E R

Running, Operation and Maintenance of First Unit of 18 Mld Sewage Treatment Plant In Sector 20 Panchkula for Period of 12 Months and All Other Works Contingent Thereto.

Authority	Manpower, Security Guard Supply tenders		
Location	Haryana, Panchkula		
Bid Open Date	19 Dec 2023	Tender Value	34.35 Lac
Doc Collection Date	18 Dec 2023	FTID	2312094406180

Design Build and Operate of Sewage Treatment Plants Stp Along With Co Treatment of Used Water and Septage With 5 Years of Operation and Maintenance in Three Towns Dharmanagar Kailashahar and Kumarghat of Tripura 2 Nd Call.

Authority	Manpower, Security Guard Supply tenders		
Location	Tripura, Agartala		
Bid Open Date	23 Dec 2023	Tender Value	28.09 Crore
Doc Collection Date	23 Dec 2023	FTID	2312074116880

Design Build Operation and Maintenance of Sewage Treatment Cum Faecal Sludge Treatment Plant of 65 Kld Capacity for Nettukaltheri Jail Kallikadu G P On Dbot Basis

Authority	Manpower, Security Guard Supply tenders		
Location	Kerala, Trivandrum		
Bid Open Date	18 Dec 2023	Tender Value	87.72 Lac
Doc Collection Date	15 Dec 2023	FTID	23111732200

Interception and Diversion for Tapping Nallah and Setup of Sewage Treatment Plant for Used Water Management of Magroni Town Jila Shivpuri Mp

Authority	Scientific Equipments tenders		
Location	Madhya Pradesh, Narwar		
Bid Open Date	21 Dec 2023	Tender Value	5.62 Crore
Doc Collection Date	19 Dec 2023	FTID	231205440930

EVENT CALENDAR



November 2023

Water Loss Forum

01 - 03 Nov 2023

Lutfi Kirdar International Convention & Exhibition Center, Istanbul, Turkey
www.waterlossforum.org

Bangladesh Water Expo 2023

02-04 Nov 2023

Dhaka, Bangladesh
www.bangladeshwaterexpo.biz

Aquatech Amsterdam

06 - 09 Nov 2023

RAI, Amsterdam, Netherlands
www.aquatechtrade.com/amsterdam

The International Water Conference

12 - 16 Nov 2023

San Antonio Marriott Rivercenter, San Antonio, USA
iwconf.org

Smart City Expo - Dubai

14 - 15 Nov 2023

The Ritz-Carlton, Dubai, UAE
10times.com/smart-cities-nh

WETEX and Dubai Solar Show

15 - 17 Nov 2023

Dubai World Trade Centre, Dubai, UA
www.watex.ae

Myanwater

16 - 18 Nov 2023

Myanmar Expo, Yangon, Myanmar
myanwater.com

Sand Water Rv Expo

17 - 18 Nov 2023

Lake Havasu State Park, Lake Havasu, USA
sandandwaterexpo.com

Cairo Water Week

29 Oct - 02 Nov 2023

Cairo, Egypt
www.cairowaterweek.eg

East Africa Water Summit

29 Nov - 01 Dec 2023

Nairobi, Ikoo, Kenya
www.eawaters.com/

December 2023

East Africa Water Summit 2023

29 Nov - 01 Dec 2023

Nairobi, Ikoo, Kenya
www.eawaters.com/

Water Bangladesh International Expo

07 - 09 Dec 2023

International Convention City Bashundhara (ICCB), Dhaka, Bangladesh
www.water-exhibition.com

SRW India Water Expo 2023

20 - 22 Dec 2023

Chennai Trade Centre, Chennai, India
www.waterepo.in

World Conference on Sustainability, Energy and Environment 2023

08 - 09 Dec 2023

City Hotel Berlin Mitte, Berlin, Germany
www.steconf.org/conference/world-conference-on-sustainability-energy-and-environment/

Malaysian International Water Convention 2023

05 - 07 Dec 2023

Putra World Trade Centre, Kuala Lumpur, Malaysia
www.miwec.tech/home

GoGreen Summit 2023

29 - 30 Dec 2023

Bali, Indonesia
www.gogreen.bioleagues.com

January 2024

Water India Expo

17 - 19 Jan 2024

Pragati Maidan, New Delhi, India

Water & Wastewater Equipment, Treatment & Transport

24 - 27 Jan 2024

Indiana Convention Center, Indianapolis, USA
www.wwetshow.com/en/home.html

WWT Wastewater Conference and Exhibition

25 - 26 Jan 2024

The National Conference Centre, Solihull, UK
www.10times.com/wwt-wastewater

Nevada Water Resources Association

Annual Conference Week

9 Jan - 01 Feb 2024

Tuscany Suites & Casino, Las Vegas, USA
www.nvwra.org/2024-symposium

Local Water Management Crossroads

31 Jan - 01 Feb 2024

Parc Expo Rennes, Rennes, France
www.10times.com/carrefour-des-gestions-locales-de-leau

InterAqua

31 Jan - 02 Feb 2024

Tokyo Big Sight, Koto, Japan
www.interaqua.jp/eng/

Smart Energy India Expo

17 - 19 Jan 2024

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

Utah Green Conference & Trade Show

22 - 24 Jan 2024

Mountain America Expo Center, Sandy, USA
www.10times.com/utah-green-trade-show

February 2024

Annual Water Expo

06 - 08 Feb 2024

Delta Hotels by Marriott Fargo, Fargo, USA
www.10times.com/water-system-expo-fargo

Mountain States Ground Water Expo

08 - 09 Feb 2024

Aquarius Casino Resort, Laughlin, USA
www.mountainstatesgroundwater.com

AquaFarm

14 - 15 Feb 2024

Pordenone Fiere, Pordenone, Italy
www.aquafarm.show/en/aquafarm-program

World Water Tech Innovation Summit

20 - 21 Feb 2024

Hilton London Bankside, London, UK
www.worldwatertechinnovation.com

E-World Energy & Water Exhibition

20 - 22 Feb 2024

MESSE ESSEN GmbH, Essen, Germany
www.e-world-essen.com/en

Pacific Water Conference

20 - 22 Feb 2024

Hawaii Convention Center, Honolulu, USA
www.hiawwa.org/2024-pacific-water-conference

UF Water Institute Symposium

20 - 21 Feb 2024

J. Wayne Reitz Union, Gainesville, USA
www.conference.ifas.ufl.edu/waterinstitute

WATER TODAY'S WATER EXPO

28 Feb - 01 Mar 2024 Chennai Trade Centre, Chennai, India

www.waterepo.biz

Water Garden Expo

28 Feb - 01 Mar 2024

Grand Casino Hotel & Resort, Shawnee, USA
www.wgexpo.com

EVENT CALENDAR



WAPTAG Water Expo

29 Feb - 02 Mar 2024 Mahatma Mandir
Exhibition Hall, Gandhinagar, India
www.waptag.org

March 2024

Roorkee Water Conclave

03 - 06 Mar 2024
Indian Institute of Technology Roorkee,
Roorkee, India
www.iitr.ac.in/rwc

New England Water Well Expo

07 - 09 Mar 2024 Best Western Royal Plaza
Hotel & Trade Center, Marlborough, USA
www.newwassociation.org

WaterReuse Research Conference

10 - 13 Mar 2024
Hilton Denver City Center, Denver, USA
www.watereuse.org/event/2024-watereuse-symposium

Start by this : Water Policy Conference

18 - 20 Mar 2024
Washington Hilton, Washington DC, USA
www.10times.com/e12k-rr53-h02x

Rural Water Conference

18 - 21 Mar 2024
Penn Stater Conference Center Hotel, State
College, USA
www.prwa.com/annual-conference

Aqua Netherlands

19 - 21 Mar 2024
Evenementenhal Gorinchem, Gorinchem,
Netherlands
www.aquanederland.nl/en/

KRWA Conference & Exhibition

26 - 28 Mar 2024 Century II Performing Arts
& Convention Center, Wichita, USA
www.krwa.net/TRAINING/Conference

April 2024

Florida Water Resource Conference

02 - 05 Apr 2024
Gaylord Palms Resort & Convention Center,
Kissimmee, USA
<https://www.fwrc.org/>

Texas Water

09 - 12 Apr 2024
Fort Worth Convention Center, Fort Worth, USA
www.txwater.org

AZ Water Conference & Exhibition

10 - 12 Apr 2024 Phoenix Convention Center,
Phoenix, USA

www.azwater.org/group/annualconference

Water Expo & Forum

16 - 18 Apr 2024 Abu Dhabi National Exhibition
Centre - ADNEC, Abu Dhabi, UAE
www.worldfutureenergysummit.com/en-gb/water.html#/

IE Expo China

18 - 20 Apr 2024 Shanghai New International
Expo Centre (SNIEC), Shanghai, China
www.ie-expo.com

Asia Water

23 - 25 Apr 2024
Kuala Lumpur Convention Centre, Kuala Lumpur,
Malaysia
<https://www.asiawater.org/>

SDARWS Rural Water Expo

24 - 25 Apr 2024
Best Western Ramkota Hotel, Rapid City, USA
<https://www.sdarws.com/>

International Green Energy Expo

24 - 26 Apr 2024
EXCO, Daegu, South Korea
<https://www.greenenergyexpo.co.kr/eng/>

Water Expo Bangladesh

25 - 27 Apr 2024
International Convention City Bashundhara (ICCB),
Dhaka, Bangladesh
<https://www.limraexpo.com/water/index.php>

Green Vision Summit & Expo

30 Apr - 02 May 2024
MFCC - Malta Fairs & Conventions Centre, Malta
<https://10times.com/e15k-f3dd-4fx4>

May 2024

Maryland Rural Water Association Conference

06 - 09 May 2024
Roland E. Powell Convention Center, Ocean, USA
<https://10times.com/mrwa-ocean>

Power of Water Canada Technical Conference & Trade Show

08 - 10 May 2024
Niagara-on-the-Lake, Canada
<https://www.owa.ca/conference/>

IFAT Munich

13 - 17 May 2024
Exhibition Munich, Munich, Germany
<https://ifat.de/en/trade-fair/>

Renewable Energy Show

16 - 18 May 2024
International Convention City Bashundhara (ICCB),
Dhaka, Bangladesh

<https://10times.com/renewable-energy-show>

Water Management Show

16 - 18 May 2024
International Convention City Bashundhara (ICCB),
Dhaka, Bangladesh
<https://10times.com/water-management-show>

West Africa Water Expo

21 - 23 May 2024
Landmark Centre, Lagos, Nigeria
<https://elanexpo.net/waweexpo/>

June 2024

SIEE Pollutec

02 - 05 Jun 2024
Add Safex - Foire d'Alger, Mohammadia, Algeria
https://siee-pollutec.com/?page_id=90&lang=en

International Exhibition on Environmental Technology & Green Energy

03 - 05 Jun 2024
COEX Convention Center, Seoul, South Korea
<https://www.envex.or.kr/eng/main/index.asp>

Watertech Africa

05 - 07 Jun 2024
Kenyatta International Convention Centre, Nairobi,
Kenya
<https://www.expogr.com/watertech/>

GreenTech Amsterdam

11 - 13 Jun 2024
RAI Amsterdam, Amsterdam, Netherlands
<https://www.greentech.nl/>

China (Guangzhou) International High-end Drinking Water Industry Expo

14 - 16 Jun 2024
China Import and Export Fair(Canton Fair
Complex), Guangzhou, China
<http://www.ihe-china.com/cn/Invitation/40.IWE/>

Singapore International Water Week

16 - 20 Jun 2024 Singapore
<https://www.siww.com.sg/>

Egypt Infrastructure & Water Expo

25 - 27 Jun 2024
Egypt International Exhibition Center, Cairo, Egypt
<https://www.egyptinfrastructureexpo.com/>

July 2024

Water and Aqueous Solutions Gordon Research Conference

20 - 21 Jul 2024
Holderness School, Holderness, USA
<https://www.grc.org/water-and-aqueous-solutions-conference/2024/>

BAYWATCH



Date: 10 - 12 January 2024

Venue: Auto Cluster Exhibition Center, Pune, India

Website: indiawatershow.com

The India Water Show is a pinnacle of excellence in water management and conservation, highlighting innovative technologies to tackle India's water challenges. It's a premier platform bringing together industry leaders, policymakers, researchers, and practitioners to discuss current issues and explore cutting-edge strategies. The event provides invaluable insights into sustainable practices for equitable access to clean water in both urban and rural areas. With exhibits featuring state-of-the-art solutions, it offers a holistic view of emerging trends in the sector. Attending equips participants with essential knowledge for decision-making on infrastructure, wastewater treatment, drought management, and advanced irrigation. The show fosters dialogue for efficient water resource management, paving the way for a secure and resilient future where every drop counts.



Date: 17 - 19 January 2024

Venue: Pragati Maidan, New Delhi

Website: www.waterandcleantechexpo.com

India is actively embracing the transformative concept of a circular economy, grounded in the principles of 'Rethink, Redesign, Reduce, Reuse, and Recycle.' The nation is committed to minimizing waste and championing the sustainable reuse and recycling of resources, with a particular emphasis on crucial areas like Drinking Water and Solid Waste management.

At the forefront of this commitment is the Water & CleanTech India Expo, an initiative aligned with the core focus of the Swachh Bharat Mission. This expo not only acknowledges the importance of these principles but actively provides technological and infrastructural solutions. It addresses the complex challenges posed by urban waste, ensuring the efficient management of solid waste, and simultaneously works towards providing access to clean drinking water.

BAYWATCH

Organized By
EAW



19th EVERYTHING ABOUT
WATER EXPO
SOUTH ASIA'S LARGEST WATER
EXHIBITION AND CONFERENCE **2024**

10-12 | **IICC**
SEPTEMBER 2024 | New Delhi, India

The 19th EverythingAboutWater Expo 2024 stands as a remarkable and all-encompassing annual event in India, spotlighting cutting-edge technologies and solutions within the water sector. This event serves as an exceptional gateway for stakeholders worldwide to immerse themselves in the expansive and dynamic realm of the Indian Water management Industry, facilitating the exchange of business opportunities, networking, and the exploration of innovative Water solutions.

India is currently on a trajectory towards severe water stress, with projections indicating a critical situation by 2025. The rapid pace of Industrialization and the burgeoning population have significantly widened the gap between water supply and demand, a matter of deep concern for both the Central and State Governments. Within the framework of the 19th Everything About Water Expo 2024, unparalleled business prospects will emerge for both domestic and international players in the Water Industry. Attendees will have the opportunity to gain valuable insights, discover future trends, and navigate the evolving landscape of the Indian Water market.

Date: 10 - 12 September 2024

Venue: IICC, New Delhi

Website: www.eawaterexpo.com

Where the Water Community Comes Together

InterAqua O

Addressing urgent global water shortages and environmental challenges is crucial for creating a sustainable society. Japan, grappling with population decline and climate risks, requires concerted efforts and fundamental revisions. Corporate engagement is pivotal, demanding activities aligned with a decarbonized society and Sustainable Development Goals (SDGs).

InterAqua2024, themed "Exhibition of water business supporting sustainable corporate activities," transcends showcasing innovative technologies. In its 15th year, this exhibition serves as a global and domestic platform to address water environment issues, evolving with market needs. Seize InterAqua2024 as a gateway for new business opportunities and insights into ongoing corporate activities, fostering a sustainable future.



Date: 31 January – 2 February 2024

Venue: Tokyo Big Sight, Koto, Japan

Website: en.www.interaqua.jp

SR. NO.	COMPANY	PAGE NO.	Telephone	E-mail	Website
111	22nd Annual Buyer's Guide 2024	23, 63	+91 85889 11033	enquiry@eawater.com	www.eawater.com
112	Axis Solutions Pvt. Ltd.	1	+91 79229 00860	info@axisindia.in	www.axisindia.in
113	Case Study Special Issue by EAW	21	+91 85889 11033	enquiry@eawater.com	www.eawater.com
114	Customized Webinar by EAW	45	+91 85889 11033	enquiry@eawater.com	www.eawater.com
115	Daftech Engineers Pvt. Ltd.	11	+91 98141 27804	mail@daftechindia.com	www.daftechindia.com
116	EverythingAboutWater eMagazine	25	+91 85889 11033	enquiry@eawater.com	www.eawater.com
117	EverythingAboutWater eMagazine	37	+91 85889 11033	enquiry@eawater.com	www.eawater.com
118	EverythingAboutWater Expo 2024	Back Cover	+91 85889 11033	enquiry@eawaterexpo.com	www.eawaterexpo.com
119	EverythingAboutWater Magazine	41	+91 85889 11033	enquiry@eawater.com	www.eawater.com
120	Paltech Cooling Towers	33		bd@paltech.net.in	www.paltech.in
121	India Water Show	29	+91 93632 35370	info@indiawatershow.com	www.indiawatershow.com
122	Malaysia International Water Week	17	+603 6140 6666	info@protempgroup.com	www.miwc.tech
123	Myron L Company	Front Cover- Inside	+1 - 760 438 2021	kwilson@myronl.com	www.myronl.com
124	Rybon Chemical	02	+91 265 2985733	chemical@raybonchemical.com	www.raybonchemicals.com
125	Subscription Form	15	+91 85889 11033	enquiry@eawater.com	www.eawater.com
126	Subscribe EAW Magazine	59	+91 85889 11033	enquiry@eawater.com	www.eawater.com
127	Transcend Cleantec Pvt. Ltd.	03, 09	+91 86691 90129	info@transcendcleantec.com	www.transcendcleantec.com
128	UB Steel	Front Cover	+91 99991 05486	watertanks@ubsteels.com	www.ubsteels.com
129	Yokogawa India Ltd	05	+91 80 4158 6000	-	www.yokogawa.com/planet/
130	Web Banner Ads	Inside Back Cover	+91 85889 11033	enquiry@eawater.com	www.eawater.com

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



**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.



19th EVERYTHING ABOUT WATER EXPO 2024

SOUTH ASIA'S LARGEST WATER
EXHIBITION AND CONFERENCE

10-12
SEPTEMBER 2024

IICC
New Delhi, India

Join us at the Water Expo and be 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

CONTACT US



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

M : +91 85889 11033
E : enquiry@eawaterexpo.com
W : www.eawaterexpo.com

Organized By



Supported By



Media Partners

