India's Water Magazine

WaterAge

Your knowledge and information partner

December 2023 ₹ 300 | US $ 15

Interview with
Mr. Rishabh Sethi
CEO, JWIL Infra Limited

2nd ANNIVERSARY

Special Edition

INSIDE

The Future of Water Purification: Blending Modern Technology with Traditional Wisdom

Innovative Approach to Pollution Abatement

Initiative of

SHUDH JAL FOUNDATION
JAL AAJ AUR KAL

Find us on:

www.waterage.in

OPTIMUS ENVIROPRO

Nurturing The Mother Nature

Optimizing the use of
Earth's Precious Resource i.e. Water

RAW WATER TREATMENT

- Dual Media Filters
- Multi Grade Filters
- Activated Carbon Filters
- Iron Removal Filter
- Water Softeners
- Demineralisation Plants
- Ultra-Filtration Plants
- Nano-Filtration Plants
- Reverse Osmosis Plants

WASTEWATER TREATMENT

Water Reuse & Regulatory Compliances

- Sewage Treatment Plants (SBR, MBR, MBBR)
- Effluent Treatment Plants
- Zero-liquid Discharge Systems (ZLD)
- Automation and Process Control
- Online Monitoring System

Water & Wastewater Treatment Solutions

WATER TREATMENT

Removal of Surface & Ground Water Pollutants

WASTEWATER TREATMENT

Sewage, Effluent, Sullage Treatment and Recycling

Optimus Enviropro Pvt. Ltd. (Approved OEM of Military Engineer Services)

CORPORATE OFFICE:
805, Bhikaji Cama Bhawan,
New Delhi-110066.
Ph: +91 11 41551444

HEAD OFFICE:
SCO 146-147, IIIrd Floor,
Sector-34A, Chandigarh-160022.
Ph: +91 172-5275055, 4012755

WORKS:
Plot No.286, HSIIDC Industrial Estate -I,
Barwala, Panchkula, Haryana- 134 118.
Ph: +91 1733 258455

Email: sales@optimusenviro.pro | Website: www.optimusenviro.pro

AADYS
COMPONENTS PVT. LTD.

One-stop-shop for Components

Ensuring smooth running for your Water & Wastewater Plants

The components from Aadys Components are rapidly getting approvals in municipal water and wastewater treatment as well as in industrial process applications across all industries and strongly recommended by water treatment specialists. Aadys Components provides a wide of range of components for water & wastewater treatment plants which are offered either as individual item, equipment, skid mounted packages or fully integrated systems. All components are sourced from world class manufacturers and industry leaders in their respective fields. The company continually strives to improve its capabilities and performance in order to provide the highest quality and technologically advanced products available in the industry.

COMPONENTS

- FRP Vessels
- RO Membranes
- RO Membrane Housings
- Dosing Pumps
- Sludge Dewatering Screw Press
- Filter Media
- Resins
- On-line Monitoring System
- Instruments
- RO Anti0scalants
- Iron Removal Media
- Valves etc.

SEGMENTS SERVED

- OEMs
- Industries
- Hospitals/Hotels/Malls
- SEZs
- Defence
- Institutions
- Public Health Departments
- Public Sector Undertakings (PSUs) etc.

AADYS COMPONENTS PVT. LTD.

CORPORATE OFFICE:
805, Bhikaji Cama Bhawan,
New Delhi-110066.
Ph: +91 11 41551444

HEAD OFFICE:
SCO 146-147, IIIrd Floor, Sector-34A,
Chandigarh-160022.
Ph: +91 172-5275055, 4012755

E-mail: sales@aadys.co.in

www.aadys.co.in

MANAGEMENT

FOUNDER	:	Sanjiv Chaudhary
GROUP EDITOR	:	Yogesh Tomar
EDITOR–IN–CHIEF	:	Renu Tomar
ASSISTANT EDITOR	:	Ria Mukherjee
DESIGN & GRAPHICS	:	Virender Kumar
MARKETING & OPERATION	:	Poonam Singh

PRINTER
Fine Art: D–7 /3, Okhla Industrial Area, Phase 2, New Delhi 110 020

PRINTED AT
Fine Art:
D–7 /3, Okhla Industrial Area, Phase 2, New Delhi 110 020

PUBLISHER
WaterAge
Initiative of SHUDH JAL FOUNDATION
805, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi – 110 066

EDITOR
Renu Tomar
#4048, B 5 & 6, Vasant Kunj, New Delhi – 110 070

For editorial contributions / press releases, write to: **editor@waterage.in**
For advertising enquiries, write to: **info@waterage.in**
For magazine & e–newsletter subscription, write to: **enquiry@waterage.in**
For support and feedback, write to: **enquiry@waterage.in**

Published by **WaterAge** (Initiative of SHUDH JAL FOUNDATION) :
805, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi – 110 066, **E–mail: enquiry@waterage.in**

RENU TOMAR
(Editor-in-Chief)

WATER SCARCITY AND WAYS OF ADDRESSING THE GROWING NEED FOR WATER

In the present time, even in nations with adequate water resources, water scarcity is not an uncommon phenomenon. Although, there are several factors causing the state of water scarcity like collapsed infrastructure and distribution systems, poor management of water resources, contamination, or even conflict, but it is quite evident that climate change and human factors have been increasingly denying the right to safe water and sanitation from children Water.

Thus, the state of water scarcity limits the access to safe water for drinking and water for even practicing basic hygiene at home, in schools as well as in health-care facilities. The situation of water scarcity anywhere may cause failure of the sewage systems and increase the threat of contracting diseases like cholera surges. Moreover, to get water at the places of scarce becomes more expensive.

For years, water scarcity have been taking a greater toll on women and children as they are often the ones responsible for collecting water from resources located miles away. To collect water from far away, children with their other female family members devote a lot of time into the task, which often means less time at school. In fact, for girl child particularly, a shortage of water in schools impose direct impact on their student enrolment, attendance and even performance. Additionally, the task of carrying water for long distances is also an enormous physical burden that can expose children to safety risks and even exploitation.

To address such issues of water scarcity, taking vital measures is immensely important such as identifying new water resources, improving the efficiency of water resources, planning for urban scarcity, expanding technologies to ensure climate resilience, making vital behavioral changes, planning national water needs, support the water sector and its online training programs to improve standards for water access.

Constructions

Building Confidence

Triveni Constructions

Engineers • Planers • Contractors

Established in 1999

MES Enlisted 'S' Class EPC

Civil Engineering Works
- Building and Roads
- Water Supply and Sewage Disposal
- Pre Engineered Buildings

Electrical Engineering works
- Low Tensin Electric Works (upto 1100 Volts)
- High Tension Electric Works (excluding 33 kV)
- Solar Panel

Electrical/Mechanical Engineering Services
- Water and Sewage Treatment






Constructions

Triveni Constructions

Engineers • Planers • Contractors

Established in 1999

Head Office: College Road, Pathankot-145 001 (Punjab)
E-mail: standard.bedi@gmail.com
Branch Office: E-08 Wave Estate, Sector-85, Mohali S.A.S Nagar-140 308 (Punjab)
M.: +91 98143 21749, +91 98141 32026, **T.:** +91 172 4039 981
E-mail: triveni_anand@yahoo.com, triveniconstructions.mohali@gmail.com,

amikon™
BLOWERS & SYSTEMS PVT. LTD.
We Understand Your Needs

Right Blowers for Right Projects

Rotary Positive Displacement Twin Lobe & Tri Lobe Compressors (ROOTS Blowers)






- Twin Lobe Roots Blowers
- Water Cooled Blower
- Filter Press
- Tri Lobe Roots Blowers
- Acoustic Enclosures / Hood
- Sludge De-watering Machine
- Gas Blower
- Ring Blowers/Side Channel Blower
- Waste Water Equipment

- BLOWERS
- PUMPS
- WASTE WATER EQUIPMENTS

WARRANTY 24 MONTHS WARRANTY

CALL SUPPORT:

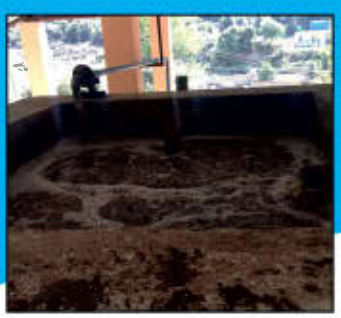
+91 11 41516313,
+91 9311108295, +91 9311108296

AMIKON BLOWERS & SYSTEMS PVT. LTD.

REGISTERED OFFICE: Plot No - 194, Block-k, Vijay Vihar, Phase-2, Sector-4, Rohini, Delhi -110085, India
CORPORATE OFFICE: Office No.G-92,Ground Floor, Vardhmaan Grand Plaza, Sector-3, Rohini, New Delhi - 110085 (INDIA)
MANUFACTURING UNIT: Plot No. 33/25 M.I.E. Part - B, Bahadurgarh - 124507 Haryana (India)
E-MAIL: amikonblowers@gmail.com, info@amikonblowers.com, sales@amikonblowers.com

www.amikonblowers.com

JAI MAA ASSOCIATES
ENGINEERS & CONTRACTORS



JAI MAA ASSOCIATES Engineers & Contractors providing services to Military Engineering Services for last two decades

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

JAI MAA ASSOCIATES
ENGINEERS & CONTRACTORS

JAI MAA ASSOCIATES

Shop No. 33 Gopinath Bazar, Delhi Cantt - 110 010
M.: +91 98111 88819, Fax: +91 11 2568 2346, E.: jaimaaassociatesdelhi@gmail.com, jaimaa98@gmail.com, info@jaimaaassociates.in

Liquiclear®
NATURALLY PURE

LDI™ TECHNOLOGY: SHAPING A SUSTAINABLE AND WATER-SECURE FUTURE

Liqui-Deionization (LDI™) is a water purification technology that uses an electrical potential difference process to remove ions & impurities from water.

Saves upto 67%* More Energy

Recovers upto 50%* More Water

Faster Purification Process

24 Hours Operation with Tunable TDS

LDISF™
ELECTRONIC WATER SOFTENER

POWERED BY LDI™ TECHNOLOGY

LDI™
ELECTRONIC WATER PURIFIER

SCAN TO GET MORE INFORMATION

#startupindia | MAKE IN INDIA | VOCAL FOR LOCAL

For more details, please contact:
+91 88009 42942

liquiclear.in

North India Faces Looming Water, Agricultural Crises as Stubborn Six–Month Dry Spell Persists Over the Region

By Ankush Banerjee – TWC India

Picture taken at Hingna outskirts of Nagpur where women farmers collect cotton (Aniruddhasingh Dinore/BCCL – NAGPUR/BCCL – MAHARASHTRA TIMES DIGITAL EDITORIAL DEPT)

The prolonged dry spell gripping North India for the past six months has raised concerns about a looming water crisis in the region, the India Meteorological Department (IMD) has warned. The lack of rainfall, both during the crucial monsoon season and after, has significantly depleted freshwater reserves and threatens to impact agriculture and horticultural activities.

According to an India Today report, the extent of the dry spell becomes evident when looking at rainfall data. In August 2023, Delhi experienced a staggering 61% deficit in rainfall. This shortfall continued in September, with rainfall being two–thirds of the normal level, and further intensified in October, which saw a mere one–third of average rainfall, marking a 64% drop.

Since then, the situation has only worsened. Delhi's sole rain event of the winter season was recorded on November 28, followed by completely dry months in December 2023 and January 2024, marking an unprecedented 60–day rainless streak. Even as we begin to transition into February, IMD forecasts indicate no immediate respite in sight.

The dearth of strong western disturbances, Mediterranean low–pressure regions typically responsible for winter rains in North India, is one of the primary culprits behind the dry spell. These disturbances bring much–needed moisture to the region, but have been conspicuously absent this year.

Additionally, El Niño, a climate phenomenon involving warmer–than–average ocean temperatures in the central and eastern Pacific Ocean, is also contributing to the erratic weather patterns and intensifying the dry spell's impact.

The ramifications of this prolonged dry spell are far–reaching. Freshwater scarcity is a major concern, potentially impacting drinking water supplies and irrigation for agriculture. Horticultural and agricultural activities are already bearing the brunt of the decreased water availability, raising fears of reduced yields and potential food shortages.

Indian farming continues to face stresses

The current weather and agriculture woes come after mammoth July rains and resultant deluges had prompted IMD to advise North Indian farmers to delay sowing crops until proper field drainage and maintenance were carried out. These would have delayed the sowing of several important crop types, including maize, soybean, Kharif pulses and vegetables. Such back–to–back hindrances on India's produce can accumulate stress on the country's overall food supply.

Fortunately for saffron farmers, a spot of late October rains helped boost production to levels even higher than last year. According to a Hindustan Times report in October 2023, Jammu–Kashmir farmers expected a 30% greater yield of the expensive spice compared to 2022. Many erstwhile wheat and maize farmers have switched to saffron in recent times due to the latter being the more lucrative crop option.

However, a dry and warming Northwest India adds to a sliver of other problems as well. A distinct absence of snow or rain in Jammu and Kashmir means that snowmelt is no longer able to replenish the soil moisture in the region, which is crucial for plant growth. Changing weather patterns affect planting schedules and overall agricultural practices as well, which can take a toll on both crop productivity and the farmers themselves. Farmers may also be forced to switch from rice to maize and beans due to such circumstances, notes Ahmad Banday, an agricultural expert.

Further, some agricultural and horticultural crops depend on the winter chill for development. A change in the weather will inadvertently lead to erratic bud break, extend flowering and create a precedent for overall non–uniform flowering. Apple orchards are also severely dependent on consistent snow cover for a good harvest, and the lack of cold despite the winter's conclusion nearing, is concerning.

The IMD's warnings underscore the urgency of taking immediate action to mitigate the effects of the dry spell. Taking water conservation measures, exploring alternative water sources, and implementing drought–resistant agricultural practices are crucial steps that need to be practised by both individuals and authorities. For weather, science, space, and COVID–19 updates on the go, download The Weather Channel App (on Android and iOS store). It's free!

The Weather Company's primary journalistic mission is to report on breaking weather news, the environment and the importance of science to our lives. This story does not necessarily represent the position of our parent company, IBM.

The Sundarbans dilemma: Islands swallowed by water, and nowhere else to go

Poor women shoulder the worst effects of rising water in the Indian delta, highlighting key lessons on building climate resilience.

27 Jan 2024 I By Piya Srinivasan

Ashtami Mondal, 30, whose 31–year–old husband Haripada died in a tiger attack, cleans utensils in a pond next to her home on the island of Kumirmari in the Sundarbans, India, November 19, 2020. Climate change is leaving less and less of the Sundarbans habitable [File: Anushree Fadnavis/Reuters]

Sundarbans, India – Panchanan Dolui, who lives on Mousuni Island in the Indian Sundarbans, has shifted homes three times due to floods and river erosion.

Each time, he moves farther from the receding edge of the island to avoid displacement. He has watched the river eat away vast tracts of land. "Where do we go? There is nowhere to go," he laments.

Located in West Bengal state in eastern India and neighbouring Bangladesh, the Sundarbans forest system is a cluster of low–lying islands and represents the largest mangrove ecosystem in the world. It is home to several endangered species and acts as a natural barrier against cyclones, storm surges and other environmental hazards. The forests are also natural agents of carbon capture and sequestration.

But things are changing fast. Four cyclones that hit the eastern coast of India from 2019 to 2021 – Fani, Amphan, Bulbul and Yaas – point to the increasingly unpredictable weather in the Sundarbans caused by climate change and rising sea levels.

Now, the Sundarbans are increasingly "not safe for human habitation", says Kalyan Rudra, chairperson of the West Bengal Pollution Control Board.

The spate of recent cyclones has compounded climate–induced displacement that the people of the Sundarbans have confronted in previous decades. Lohachara was one of the first inhabited islands to disappear under the sea in 1996, forcing residents to relocate to neighbouring islands, often without documents or property deeds. In the face of limited options for making a living and without sufficient development in the region, migration has become a coping strategy for many residents. There have been several waves of migration within the Sundarbans, often on the same island, to avoid flooding from embankment breaches, tidal bores and storm surges.

Since Cyclone Aila in 2009, distress migration driven by economic vulnerability has resulted in men taking up work as informal migrant workers across India.

Women–headed households in the Sundarbans are more common than in any other area of India because of distress migration. But these households are often marked by debt burdens, a high number of dependents and limited livelihood options.

Meanwhile, increasing land salinity due to severe cyclonic storms and tidal wave action, which carries seawater from the Bay of Bengal into the Sundarbans delta, impedes soil productivity.

Increased salinity forces farming changes

Salinity–resistant paddy farming is an important form of climate change adaptation in the area, and it has become increasingly popular over the past decade.

Increased salinity, however, has also led to brackish water shrimp farming on a commercial scale, causing land degradation. The health of women who perform the poorly paid labour of prawn seed collection, which involves standing up to six hours in saltwater, is adversely affected.

Increasing salinity is a leading cause of reproductive health problems among rural women in the Sundarbans, including pelvic inflammation and urinary tract infections. Increasing salinity has also led to a severely degraded mangrove ecosystem, affecting biodiversity and causing a loss of forest reserves that sustain local communities.

The IRE of Tigers

The pressure on forest resources also amplifies man–animal conflict in the area. The Sundarbans are home to tiger widows, women whose husbands went into the Sundarbans reserve for fishing or honey collection and were killed by tigers.

There is no official recognition of such deaths because entry into the forest became illegal for its dwellers once the area was declared a tiger reserve in 1973 and came under the Wildlife Protection Act of 1972.

Pradip Chatterjee, former president of the Dakshinbanga Matsyajibi Forum or the South Bengal Fishers' Union, calls these tiger deaths "be–aini mrityu", or illegal deaths, marked by the erasure of the person's

existence.

He notes that the local police station refuses to make entries of the tiger deaths because of their "illegal" nature, hampering the process of applying for compensation – a bureaucratic labyrinth that requires the deceased's kin to produce a police report and death certificate. Recently, the Calcutta High Court acknowledged tiger deaths in a landmark decision, ordering the West Bengal Forest Department to pay full compensation to two tiger widows.

How the marginalised are sidelined

Continuing climate disasters not only slow down the recovery but also exacerbate pre–existing vulnerabilities of caste and gender. For example, government relief after disasters is often selective and contingent on existing land holdings, such as after Cyclone Amphan.

"Our two–room house collapsed and trees had fallen on them. We couldn't enter our house any more," former Sundarbans resident Neela Ghosh said. "But relief workers went to those houses that were unaffected and where the owners don't live. We are sitting outside our broken home and receiving very meagre funds."

As erosion across the Sundarbans continues, officials struggle to agree upon areas suitable for the relocation of the most vulnerable residents. West Bengal recorded the longest stretch of shoreline erosion in India at 63 percent with 99sq km (38sq miles) of land lost due to coastal erosion from 1990 to 2016. This has a direct effect on the landless, marginal residents of the Sundarbans, who reside closest to the riverbanks.

In a telephone interview, a Forest Department official says prime land was already occupied in the Sundarbans and people located on the edge – usually the most marginalised and vulnerable – would only be relocated to another edge. The remaining public land is not fit for habitation or agriculture, meaning the only area that could be converted into habitable or agricultural land was forest, the official added. So, in responding to people forced from their homes because of erosion, government policy will have to walk a fine line in not claiming more forest land for relocation. Decisions around where to relocate residents are made more difficult by the fact that erosion has made some islands, including Sagar Island, to which planned relocation has been taking place, unsafe for human habitation, according to Rudra.

However, there are some areas of the Sundarbans where sediment build–up is taking place, which presents possibilities. "We can identify such areas which are less vulnerable and relocate some people there who are really vulnerable," Rudra says.

But he emphasises the impossibility of rehabilitating the entire Sundarbans population of more than 4.5 million people and adds that since erosion will continue, relocation is not a sustainable solution. "We have to live with this kind of disaster," he says.

Future hangs in the balance

In December, state capital Kolkata became one of the first claimants for climate change–induced loss and damage from the Loss and Damage Fund, which was agreed upon during the United Nations COP28 summit. The fund will include coverage for climate–displaced populations from the Sundarbans.

In response to increased threats due to climate change, the National Disaster Management Authority developed a draft policy in early 2023 that it refers to as the bedrock of India's climate change adaptation. It includes coastal and river erosion. The policy covers mitigation and resettlement of those displaced by such forms of erosion with the intended outcome of reducing loss of land, enhancing economic resilience and minimising vulnerability.

However, uncertainty surrounds the future of climate resilience in this area because money allocation and disbursement are subject to the sway of politics. The central and the West Bengal governments have a contentious relationship, which escalated during the review of the damage caused by Cyclone Yaas in May 2021.

World Water Forum means to seek drinking water solutions: Ministry

January 26, 2024

A drinking water supply system (SPAM) infrastructure. ANTARA/HO – Kementerian PUPR

Jakarta (ANTARA) – The Ministry of Public Works and Public Housing stated that the 10th World Water Forum is a means to seek concrete solutions for the issues of drinking water and sanitation in Indonesia.

The 10th World Water Forum, themed "Water for Shared Prosperity," is scheduled to be held on May 18–24, 2024, in Bali.

"The 10th World Water Forum is a means of finding real solutions to drinking water and sanitation issues in Indonesia. All parties must work together to answer big challenges related to water," the ministry's Director General of Human Settlements, Diana Kusumastuti, stated here on Friday.

Kusumastuti noted that her ministry and the World Water Council have designed a series of meetings in accordance with the three processes of the forum: thematic process, regional process, and political process.

She underlined that access to adequate and safe drinking water is still a challenge in Indonesia.

According to Kusumastuti, access to adequate drinking water has currently only reached 91 percent, while access to safe drinking water stands at 11.8 percent.

"Moreover, the achievement of access to adequate drinking water has only increased by around one percent per year and the growth rate of piped (water) access has not reached one percent over the last five years," she remarked.

She noted that policies on the provision of drinking water must be carried out through several aspects, such as increasing service coverage and meeting drinking water quality standards.

Meanwhile, the other efforts are increasing the capacity and role of the drinking water supply system (SPAM) and increasing funding capacity and commitment of stakeholders regarding funding.

"The challenges that must be faced to achieve the target of 100 percent safe access to drinking water are urbanization and population, territorial (issues), regulations, governance, economy, and the environment," she remarked.

Those challenges can be faced with integrated development based on spatial planning, community–based infrastructure development, and an increase in development funding.

She also emphasized that in the development of drinking water and sanitation facilities, sound cooperation and collaboration between the central government and regional governments is of utmost importance.

The 10th World Water Forum will feature discussions involving three processes, namely thematic, political, and regional.
The thematic process will cover six sub–themes: water security and prosperity; water for humans and nature; disaster risk reduction and management; governance, cooperation, and hydro–diplomacy; sustainable water finance; and knowledge and innovation.

The regional process will cover four regions, namely the Mediterranean, the Asia–Pacific, the Americas, and Africa.
Meanwhile, the political process will comprise meetings of heads of state, ministers, parliaments, local authorities, and basin authorities.

Many but not all of the world's aquifers are losing water

There is recovery in some areas, probably due to improved regional water management

Decades of drought as well as excessive water pumping in parched Iran is causing the land to sink in many parts of the country, such as in Malard (shown in 2019), just west of Tehran. AP PHOTO

By Carolyn Gramling–JANUARY 24, 2024: The world's precious stash of subterranean freshwater is shrinking — and in nearly a third of aquifers, that loss has been speeding up in the last couple of decades, researchers report in the Jan. 25 Nature.

A one–two punch of unsustainable groundwater withdrawals and changing climate has been causing global water levels to fall on average, leading to water shortages, slumping land surfaces and seawater intrusion into aquifers. The new study suggests that groundwater decline has accelerated in many places since 2000, but also suggests that these losses can be reversible with better water management.

It's the first effort to synthesize global–scale groundwater data collected on site, rather than assessed by satellite. Previous studies have quantified the scope of global groundwater loss by analyzing data collected by a pair of NASA satellites known as GRACE (SN: 6/18/15). But while satellites can scan the entire globe, some of the nuance of water loss — and recovery — in regional aquifers can be hard to detect from space, the researchers say.

To assess how groundwater is changing in aquifers, hydrologist Scott Jasechko of the University of California, Santa Barbara and colleagues analyzed water level data collected since 1980 in about 170,000 monitoring wells around the globe. Those wells offer glimpses into the state of almost 1,700 of the world's largest aquifer systems.

Using the well data, the team identified where groundwater loss was most quickly accelerating. In 12 percent of the aquifers the team studied, water levels are now dropping by more than half a meter per year. And in 36 percent of the aquifer systems, the water level is dropping by a tenth of a meter per year. The fastest declines were detected in some of the world's most arid regions, including central Chile, Iran and the western United States.

Researchers keep tabs on groundwater levels using monitoring equipment installed at wells such as this one, at California's Jack and Laura Dangermond Preserve north of Los Angeles.

SCOTT JASECHKO

But there are signs of hope, the researchers say. In some areas, groundwater levels have begun to climb in the last two decades, even after shrinking at the end of the 20th century. Those recoveries are probably due to changes in regional water management. Groundwater losses from an aquifer in Thailand's Bangkok basin, for example, reversed this century thanks to regulatory measures that include charging fees on groundwater pumping and licensing wells. The Abbas–e Sharghi basin of Iran, meanwhile, is now recovering after water was diverted to the basin from a large dam in the west of the country.

These reversals suggest that "long–term groundwater losses are neither universal nor inevitable," the team says.

The results are also important for understanding discrepancies between GRACE data and local observations of groundwater levels, which have long been a thorn in the side of water management, says environmental scientist Li Xu, who was not involved in the study. Studies like this can be a big help in identifying where and why those discrepancies occur, he says, and "will definitely contribute to creating a global baseline for sustainable groundwater management."

By identifying hot spots that need the most urgent attention, this work also helps highlight which parts of the world are most at risk of involuntary human migration due to water shortages, says Xu, of the University of Saskatchewan's Global Institute for Water Security in Saskatoon, Canada. "Water is the key trigger for human migration or displacement worldwide, and those populations in low– and middle–income countries and in dry regions are most vulnerable." Identifying those regions most at risk could lead to timely policy interventions, he says, "especially cross–border [aquifers] that could further increase the risk of armed conflicts."

Saudi Arabia seeks to host World Water Forum in 2027

ARAB NEWS I January 26, 2024: Picture taken in a space at the Citizen Village where visitors can pretend they help clean the ocean, during the 8th World Water Forum taking place in Brasilia, on March 20, 2018. (AFP)

RIYADH: Saudi Arabia has officially submitted a request to host the eleventh session of the World Water Forum in 2027 in Riyadh.

This submission confirms its interest in sustaining water resources, improving the quality of life, achieving sustainable development goals, and continuing to play a pioneering role in dealing with water issues in regional and international arenas, Saudi Press Agency reported.

Organized by the World Water Council, the World Water Forum represents the largest event in the field of water management.

It brings together governments, organizations, officials, and specialists from all relevant fields to exchange experiences and open up aspects of cooperation to develop the sector and ensure its sustainability.

The forum provides a platform for exchanging ideas, knowledge, and cooperation between concerned parties worldwide.

It also offers opportunities to present international best practices and find ways of cooperation to ensure sustainable water resource management worldwide.

After the setback of Expo 2030, Rome is once again challenging Riyadh to host the forum in 2027, the most important global gathering for the discussion and reflection on water issues.

As the city renowned for fountains and aqueducts, Rome has submitted its proposal, and the competition this time is between Italy and Saudi Arabia, with the verdict expected in May, during the 2024 Forum in Bali, Indonesia.

Despite being one of the countries with the scarcest water resources in the world, the Kingdom has applied to host the forum, given that the Kingdom possesses modern and advanced infrastructure, regulations and legislation regulating the sector.

The National Water Strategy is the roadmap that charts the future and helps overcome its challenges by establishing comprehensive institutional and structural frameworks.

Interview with
MR. RISHABH SETHI
CEO,
JWIL Infra Limited

Interview by
Virender Kumar

FLOWING TOWARDS PROGRESS: CRUCIAL ROLE OF WATER INFRASTRUCTURE

Our greatest success is the steady increase of new projects, a testament to our commitment to innovation, growth, and impactful contributions in the water sector.

Rishabh Sethi is Chief Executive Officer of JWIL Infra Limited, a public listed company with infrastructure development projects. Under his leadership, JWIL has become a leading water management company in India and he has overseen the execution of some of the large and marque projects in water sector. He is a member of expert committees in industries associations for his expert guidance and advice. He has earlier worked with a large water company in India apart from AT Kearney, Daimler Chrysler, Procter & Gamble and Gillette etc.

www.jwil.in
Linkedin: https://www.linkedin.com/in/rishabh-sethi-61570ba/

Q. India has experienced significant progress in water supply under the Jal Jeevan Mission and various government initiatives. How do you perceive this development?

A. I am greatly impressed by the rapid progress of water supply in rural India, particularly under the Jal Jeevan Mission (JJM). This development underscores government's commitment to improve rural water supply and enhancing water resources for the well–being of people across the country. The initiative reflects a positive shift towards achieving comprehensive water security and supporting the socio–economic development of India.

The accomplishments of the Jal Jeevan Mission are outstanding; as of January 20, 2024, it has successfully connected an additional 109 million rural households with functional tap water connections since its launch in 2019. This significant progress underscores the mission–mode implementation of JJM, reaching all households in 96,520 panchayats in 167 districts connecting more than 2 lakh villages, thereby ensuring a reliable tap water supply. A landmark in India, the mission allocates an unprecedented budget exceeding 6.47 lakh crore towards water supply projects under both Jal Jeevan Mission rural and urban sectors.

JWIL has been a trusted partner to Jal Jeevan Mission, currently executing multiple projects in Jharkhand, Madhya Pradesh, Rajasthan, Tamil Nadu, and Uttar Pradesh. In these regions, we are actively engaged in constructing water treatment plants, pumping stations, over 3000 kilometers of water supply pipelines, and several thousands of house service connections.

Q. Water scarcity in India is becoming a significant challenge. What measures can be taken to mitigate its impact?

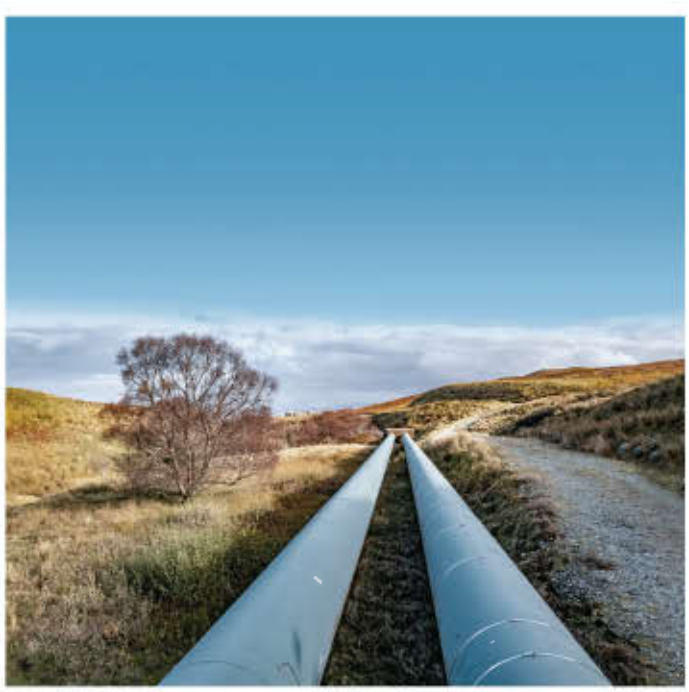
A. Water scarcity is a pressing global issue, and India is no exception. A World Health Organization (WHO) report suggest that around 2.2 billion people (more than 27% of the world's total population) do not have safely–managed drinking water. The planet Earth is facing immense pressure to provide clean water to nearly 8.1 billion people's thirst, food, and economic needs.

As this crisis intensifies, it has become a significant challenge with almost half of the population in India is suffering from water scarcity. To mitigate its impact, implementing

Water Professional

This year will hold exciting new opportunities and innovation within the water sector. At JWIL, we are eager to witness the developments that lie ahead and to uphold our commitment to water.

4 MLD CETP for Industrial Area, Sitarganj, Uttrakhand



Bulk Water Supply Pipeline

Elevated Water Reservoir

Rural Water Supply Project, Sehore, Madhya Pradesh

measures such as efficient water management practices, investing in robust water infrastructure development, harnessing innovative technologies, conservation efforts, promoting water–saving equipment, enhancing irrigation systems, and raising awareness about responsible water usage are crucial steps.

Implementing rainwater harvesting, establishing resilient wastewater treatment for reuse, detecting leaks and minimizing water losses to improve the overall efficiency of water supply networks, along with enforcement of rigorous policies and sustainable water management practices will collectively help in mitigating water scarcity in the long term.

Q. How do you envision the prospects of water sustainability in India?

A. Water sustainability is a broad topic and there are so many different interpretations. Sustainability encompasses a comprehensive approach, including ensuring sufficient water supply, resilience of infrastructure, resource augmentation, pollution reduction, and a broader perspective that addresses carbon emissions while considering the water cycle holistically.

In the Indian context, it presents a complex landscape influenced by factors like population growth, rapid urbanization, extensive industrialization, huge agricultural needs, and the impacts of climate change. The country encounters challenges such as excessive groundwater extraction, increasing pollution, and inefficient water management practices. Initiatives like the Jal Jeevan Mission strive to offer clean water to every household, while projects like Namami Gange, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Atal Bhujal Yojana and others contribute to ensuring the supply of drinking water, sewerage connections, wastewater treatment, and enhancing water resources.

Advanced technologies will enable water utilities to make informed decisions, ensuring a more sustainable and resilient water future.

The innovations in water harvesting, conservation, and efficient agricultural practices are gaining importance. Collaborative efforts, policy reforms, and technological advancements are crucial to ensuring a sustainable water future for India, balancing the needs of different sectors while safeguarding the environment.

Q. What kind of technologies in water sector is being utilized to drive greater sustainability in everyday operations?

A. Water sector is making progress in digital transformation. Advanced solutions like Internet of Things (IoT) sensors, remote monitoring systems, and smart meters enable real–time data collection and analysis, optimizing water distribution and consumption. Geographic Information System (GIS) technology aids in mapping and managing water resources efficiently, while artificial intelligence (AI) facilitates predictive modeling for water quality and infrastructure maintenance. These technologies empower water utilities to make informed decisions, reduce wastage, and ensure a more sustainable and resilient water management system.

Q. Could you provide an overview of JWIL's business and outline the services your organization offers in the water sector?

A. JWIL Infra Limited is a leading water management company in India with global presence, committed to enhancing water services for human, industrial, and agricultural needs. Leveraging strong in–

Water Supply & Distribution System, Majholi, Madhya Pradesh

house design and engineering capabilities, JWIL offers comprehensive solutions for drinking water treatment and supply, wastewater treatment and reuse, as well as industrial effluent treatment and bulk water supply for irrigation purposes.

We are driven by a mission to protect human health and foster economic progress by ensuring the efficient and timely execution of projects aimed at delivering clean water to communities, farmers, and industries. With a wealth of experience of nearly two decades in effectively executing water projects, JWIL utilizes the expertise of a committed team comprising skilled engineers and quality professionals. This team ensures a smooth transition from concept to commissioning in water supply and wastewater treatment projects, offering comprehensive services that prioritize innovation and engineering. Our focus is on establishing sustainable processes to efficiently optimize water resources.

With the implementation of various projects, both completed and ongoing, JWIL has achieved success in providing clean drinking water facilities to over 20 million people in India.

Q. Can you share details about JWIL's global ventures and the projects it is executing?

A. JWIL Infra Limited is a global player in water management projects. The company is involved in Asian and African countries with commitment to deliver comprehensive solutions aimed at addressing water–related challenges.

JWIL is currently implementing a water supply project in Tanzania, focusing on building sustainable water infrastructure to enhance access to clean and safe drinking water in both urban and rural regions. This project, supported by the Exim Bank of India includes key components such as 52 MLD water intake, 51 MLD water treatment plant, 200 kilometers of pipelines, three pumping stations, and ten service reservoirs, among other essential facilities.

We have also executed the Asian Development Bank (ADB) funded Kathmandu valley water supply improvement project that seeks to enhance water supply services in Nepal. The project envisions the development of infrastructure for bulk water transmission and the improvement of distribution network systems. Project activities involve supplying, laying, testing, and commissioning of rising main and feeder lines using pipes with diameters ranging from 400mm to 1400mm. The project also included the construction of three service reservoirs with a combined capacity of 25,500 cubic meters.

JWIL has established itself as a preferred partner for water infrastructure development projects globally and it is fully prepared to engage in various countries for such endeavors.

Q. How do you envisage the growth prospects for JWIL in 2024?

A. I am very positive about the growth prospects of JWIL in 2024. With focus on strategic initiatives and delivering innovative solutions, JWIL is poised to capitalize on new opportunities in water infrastructure development projects both within India and internationally. With a strong foundation, experienced team, technological intervention, strategic planning and execution, and a commitment to excellence, JWIL is well–positioned for significant growth and positive contributions to the water sector. The objective for 2024 is to sustain the momentum in both Indian and international projects.

INNOVATIVE APPROACH TO POLLUTION ABATEMENT

D P Singh
Universal MEP Projects & Engineering Services Limited (UMPESL)

About UMPESL:
Universal MEP Projects & Engineering Services Limited (UMPESL), a 100% wholly–owned subsidiary of Voltas Ltd, is engaged in mechanical, electrical and plumbing (MEP)/ heating, ventilation and air–conditioning (HVAC) and water projects, mining and construction equipment (M&CE) business and textile machinery business.

India's increasing population, rapid urbanisation, changing demographics, climate change, increase in the standard of living and industrial growth have led to the tremendous stress on finite water resources. Per capita availability of water declined at an alarming rate from 1816 m3 in 2001 to 1545 m3 in 2015 in the country. The gap between the demand and supply of water is increasing year by year and is expected to widen further in the coming years. In lieu of this, sustainable eco–friendly water management solutions have acquired critical importance. Alternative sources of water supply through recycle, reuse of treated water and sea water Desalination has been promoted by various Government Initiatives like Namami Gange Program, AMRUT, Swatch Bharat Mission, Jal Jeevan Mission, etc. Some factors that limit the reuse of waste water include negative perception about waste water recycling, lack of technological awareness and fragmented nature of the market.

The creation of infrastructure for waste water management like sewerage network and sewage treatment plants with tertiary treatment facility to enable recycle of treated water for industries/ agriculture has not kept pace with the burgeoning population, leading to a huge gap in sewage generation and treatment in India. National mission on Cleaning River Ganga through Namami Gange Program that was launched in 2014, has allocated an amount of Rs. 250 Billion for Pollution abatement, Conservation and Rejuvenation of the Sacred Ganga River across major states like Rajasthan, Bihar, West Bengal, Uttarkhand, Haryana, UP and Delhi. The latest data is mentioned in the image below.

There has been a substantial improvement in quality of Ganga water since last 5 years due to impetus from Central/ State/ULB in this regard and commissioning of a new large sized STPs and revamp of old STPs. Construction work of STP for capacity enhancement to 5015 MLD is under progress across several states.

Bihar Urban Development Corporation Limited (BUIDCO) through National competitive bidding has awarded a contract to Voltasto execute Sewage Treatment Plant in two locations at Patna namely – Beur and Karmalichak of capacity 43 MLD and 37 MLD, respectively on complete EPC basis including 10 years of O&M. Sewerage network was done another EPC contractor. This project was funded by the World Bank and regular monitoring of the Project Progress was reviewed by them along with BUIDCO team.

Complete Plant along with the Pumping station was built successfully within time schedule and currently under fourth year of O&M without any interruption. These STP Plants were built on latest SBR Technology with state–of–art continuous monitoring through Automation and Inbuilt control systems. The plant is equipped with a secondary power source DG which ensures sustainable operations feasible all through the year. Dedicated laboratory equipped with all the testing facility and qualified chemist pave way for the analysis of water samples for regular monitoring and control of process operations. The plant is equipped with the Supervisory Control and Data Acquisition (SCADA) system, networked to the PLC unit process controllers which acquires and displays all basic process parameters and other equipment protection

Time period of each process can be adjusted flexibly in this process. Since anaerobic, anoxic condition can be flexibly controlled for BOD reduction, Nitrification, De–nitrification as well as biological phosphorous removal is possible corresponding to BOD/COD loading variations.

Plant Inauguration by Honourable PM

Our Honourable PM has Inaugurated the state–of–art facility on 15 Sept 2020. Client has appreciated the performance of the plant and treated water is being let out to the Ganga River at present. BUIDCO Team is working on usage of this treated water for agriculture and other non–potable applications and tenders are being floated. This will generate revenue to local body owning this plant and will be self–sustaining in the long run.

Sludge generated is taken through Centrifuge– Dewatering unit and high consistency cake of 20–22% is made using polyelectrolyte dosing.

interlocks and issues remote control actions for maintaining process control. All custom–made performance reports for hourly/daily/weekly/ monthly are generated automatically from the SCADA System which helps in reporting to Client/ Pollution Control Boards for compliance of statutory regulations.

The plant has three stage treatment Process – Primary treatment, Secondary Treatment and Final treatment. In the primary stage, foreign materials are removed through coarse and fine bar screens –Manual and Automatic followed by grit removal through Detritor (for Sand and Silt Removal). Secondary Treatment is through SBR technology which uses single tank on cyclic operation – Fill up, Aeration, Sedimentation and Decantation through Auto mode in Pre–set sequence. The SBR Technology is an advanced configuration of activated sludge process which provides extended aeration of activated sludge. It is a type of activated sludge treatment system which treats sewage by aeration and sedimentation in a single tank. Time period of each process can be adjusted flexibly in this process. Since anaerobic, anoxic condition can be flexibly controlled for BOD reduction, Nitrification, De–nitrification as well as biological phosphorous removal is possible corresponding to BOD/COD loading variations.

The Oxygen levels are maintained by on line DO meter coupled with VFD of air blowers to conserve power and maintain uniform Dissolved Oxygen Levels for maximum BOD reduction. Simultaneous, Denitrification and Nitrification is happening consequential reduction in other impurities as well. SBR can handle sudden surges in quality at low maintenance requirements and minimal operating cost. Consistency in quality of treated water is the significant aspect observed in this plant.

Final treatment (Disinfection) involves reaction with chlorine to disinfect micro–organisms present if any and the residual chlorine is monitored in with the treated water discharge system. The BOD/COD levels achieved are in line with latest CPCB guidelines on continuous basis and tabular column below indicate the inlet and outlet parameters of the STP plant.

Sludge generated is taken through Centrifuge–Dewatering unit and high consistency cake of 20–22% is made using polyelectrolyte dosing. Its disposed of as Natural organic manure for agriculture.

Sl. No.	Parameters	Inlet water	Treated Water
1	BOD – Mg/lit	60–80	5–7
2	COD– Mg/lit	170–200	17–25
3	TSS –Mg/lit	70–100	8–10
4	Total Nitrogen	30–40	6–7
5	Total Phosphorus	7–8.5	1–1.5
6	Ammoniacal N2	29–35	3–4

JAI MAA ASSOCIATES
ENGINEERS & CONTRACTORS

JAI MAA ASSOCIATES Engineers & Contractors providing services to Military Engineering Services for last two decades

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

JAI MAA ASSOCIATES
ENGINEERS & CONTRACTORS

JAI MAA ASSOCIATES

Shop No. 33 Gopinath Bazar, Delhi Cantt - 110 010
M.: +91 98111 88819, Fax: +91 11 2568 2346, E.: jaimaaassociatesdelhi@gmail.com, jaimaa98@gmail.com, info@jaimaaassociates.in

Anil Guptha
Founder of Aqua Kline

THE FUTURE OF WATER PURIFICATION: BLENDING MODERN TECHNOLOGY WITH TRADITIONAL WISDOM

Introduction

The pursuit of pure, healthy drinking water has led to significant advancements in water purification technologies. Modern systems like Reverse Osmosis (RO) have revolutionized water filtration, yet they often overlook aspects of water that contribute to overall well–being. This is where the integration of traditional wisdom, akin to the principles behind Aqua Kline's Ayurvedic RO system, becomes crucial. This article delves into how modern technology and age–old practices, such as those in Ayurveda, can work in tandem to not only purify water but also enhance its health benefits. This synergy promises a future where water purification isn't just about removing contaminants, but also about nurturing health, a principle at the core of Aqua Kline's innovative approach.

Understanding Traditional Water Purification Methods

Traditional water purification, with roots in practices like Ayurveda, has been nurturing health for centuries. These methods, using natural elements like charcoal, sand, and medicinal herbs, not only purify water but also infuse it with health–enhancing qualities. Aqua

Kline's Ayurvedic RO system exemplifies this approach by blending these ancient practices with modern technology. This method ensures that the water retains essential minerals and natural properties, providing more than just purification – it offers a source of vitality and wellness. Understanding the philosophy behind these traditional methods opens up possibilities for a more holistic approach to water purification, much like the one Aqua Kline has pioneered.

Modern RO Systems: Advancements and Limitations

Reverse Osmosis (RO) systems represent a significant technological advancement in water purification, efficiently removing contaminants. However, they also remove beneficial minerals, producing demineralized water. Aqua Kline's Ayurvedic RO system addresses this by reintegrating essential minerals post–filtration, thus maintaining the health benefits of naturally mineralized water. While RO systems excel in purification, incorporating features that address their limitations, as Aqua Kline has done, enhances their functionality, making them not just purifiers but also enhancers of water quality.

The Convergence of Tradition and Technology

The integration of traditional purification methods with modern RO technology, as seen in Aqua Kline's Ayurvedic RO system,

Aqua Kline's pioneering approach is a testament to the possibilities that await in the realm of water purification, heralding a future where water is not just a basic need but a source of health and vitality.

Such examples provide real–world evidence of the practical benefits of this integrated approach, offering a model for future innovations in water purification.

is a leap forward in water purification. This approach not only purifies water but also enriches it with minerals and balances its pH, aligning with Ayurvedic principles. This convergence is about creating a system that maximizes the benefits of both worlds, offering water that is both clean and conducive to health. Innovations like Aqua Kline's system set new standards in water quality, marrying efficiency with the wisdom of traditional practices.

Case Studies and Examples

Case studies, like those involving Aqua Kline's Ayurvedic RO system, demonstrate the effectiveness of blending modern and traditional purification methods. In these instances, users have reported not only improved water taste and quality but also noted health benefits consistent with the consumption of mineral–rich water. Such examples provide real–world evidence of the practical benefits of this integrated approach, offering a model for future innovations in water purification.

Environmental and Health Implications

The combination of modern RO systems with traditional methods, as in Aqua Kline's Ayurvedic RO, has significant environmental and health benefits. Environmentally, this approach can lead to more sustainable water purification, using natural materials and processes. From a health perspective, this integrated method produces water that is not only contaminant–free but also rich in essential minerals, supporting overall wellness. By addressing environmental and health aspects, systems like Aqua Kline's align with global trends towards sustainable and health–conscious living.

Challenges and Future Perspectives

Integrating traditional methods with modern RO systems, as Aqua Kline has successfully done, presents certain challenges, such as aligning old–world wisdom with new–world technology. However, the potential for future advancements is vast. Innovations could lead to smarter, more adaptive systems, like Aqua Kline's, which cater to individual health needs and preferences. The future of water purification lies in more holistic, adaptable, and sustainable approaches, blending the best of tradition and technology.

Conclusion

In conclusion, the integration of traditional wisdom with modern RO technology, as exemplified by Aqua Kline's Ayurvedic RO system, marks a new era in water purification. This approach offers a solution that purifies and enhances water, aligning with the needs of modern living while respecting ancient practices. As we progress, this holistic method of water purification becomes increasingly relevant, promising clean, nourishing water that supports health and wellness.

Aqua Kline's pioneering approach is a testament to the possibilities that await in the realm of water purification, heralding a future where water is not just a basic need but a source of health and vitality.

Ready to experience the harmonious blend of tradition and technology in water purification? Discover how Aqua Kline's Ayurvedic RO system is revolutionizing hydration and health. Visit www.aquakline.com to learn more and embrace the future of water today.

Anil Guptha
Founder – Aqua Kline: Innovator, Disruptor, Scaler

With a visionary eye and a relentless spirit, I, Anil, have founded AquaKline with a clear mission: to redefine the standards in the water filter industry. My journey is fueled by a recognition of the critical gap in after–sales service, often laden with challenges and excessive costs. At AquaKline, we're not just solving a problem; we're igniting a revolution in water filtration.

As an innovator, I am constantly on the lookout for groundbreaking technologies to enhance water quality and make it universally accessible. My role as a disruptor involves challenging outdated norms, demonstrating that premium water quality and exceptional service can be achieved without financial strain. As a scaler, my ambition is to expand our vision across the nation, ensuring every home and business can experience the AquaKline difference.

AquaKline's story, however, transcends beyond my individual narrative. It represents a collective endeavor of those who share a belief in the transformative power of clean water. We are dedicated to serving communities, safeguarding families, and crafting a sustainable future, together.

My work and vision have garnered recognition from esteemed publications like ANI, Hindustan Times, Business Standard, and Daily Hunt. As a thought leader, I have conducted over 30 workshops and numerous talks at leading companies, educational institutions, and online platforms.

I am always open to engaging conversations and new collaborations. Feel free to connect with me at anil@anilguptha.com.

Subscribe
to our Magazine

WaterAge

To get all updates about the happenings in the Water World, you can now subscrib our monthly magazine "WaterAge" which finds its readership among thousands of leading industries, government bodies, consultants and contractors based worldwide.

Find us on:

SHUDH JAL FOUNDATION
JAL AAJ AUR KAL

805, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi – 110 066
M.: +91 99589 60470, E-mail: enquiry@waterage.in, Web.: www.waterage.in

HARMONY IN ACTION:

"COP28 and Global Water Sustainability for a Resilient Future"

Anagha Krishnan,
Research Associate, Mu Gamma Consultants Pvt. Ltd. Gurugram

Anagha specializes in the field of urban water supply, water reuse, climate change and sustainable development. She was engaged with the EU–India project unlocking wastewater treatment, water reuse and recovery opportunities for urban and peri–urban areas in India. In addition to her work on projects related to river pollution management and water conservation, Anagha also supports the development of a knowledge database for the management of plastic pollution. As a content writer, she has produced articles and reports that demonstrate her expertise.

Introduction

Any deliberation on climate change cannot be considered complete without a discussion on water. The correlation between water and climate change has been well established. When the world leaders gathered for COP28 (28th United Nations Climate Change conference in December 2023) in Dubai, United Arab Emirates (UAE), the world water community keenly watched. It was heartening to witness that unprecedented attention was paid to water–related concerns. The conference, with the topic "Adaptation to Climate Impacts: Building Resilience and Securing a Sustainable Future," acknowledged the critical role that water plays in both preventing climate change and adjusting to it. Considering that the issue of water security has not been the top–of–the–agenda item in previous international climate agreements, this represents a significant advancement.

The goal of the COP28 was to sharpen the focus on global climate ambition before the end of the decade. Through the Paris Agreement (held in COP21 in 2015), the concepts of Global Stocktake (for evaluating global progress every five years) and the Global Goal on Adaptation (for enhancing global adaptive capacity, strengthening resilience and reducing vulnerability to climate change) were adopted. Through these concepts, the subject of water gained significant traction in the global climate agenda at COP28. Unquestionably, COP28 intensified discussions on water–related issues in the international climate policy circles. During the meeting, the triangular coalition consisting of the Netherlands, Tajikistan, and the United Arab Emirates UAE has shown itself to be a formidable advocate for water and climate action. COP28 underscores the crucial role of international cooperation and unity in forming alliance and exchanging knowledge. It recognizes that climate change is a cross–border challenge, that necessitates cohesive endeavors to address its impacts effectively. Further, a collaboration on water–resilient food systems was established, assisting nations and non–state actors in integrating water and food systems management for both adaptation and mitigation in national climate action plans prior to COP30 to be held in November 2025 in Brazil.

The scientific community, for a long time, has been alerting about the detrimental effects that climate change would have on our planet. We now understand that these prophecies are true and not just stories, as climate change impact

> The use of sustainable water management techniques are effective ways to reduce water stress as well as improve resource and economic efficiency.

Dr Kriti Akansha
Consultant, Mu Gamma Consultants Pvt. Ltd., Gurugram.

Kriti Akansha is a sustainability professional specializing in studying the impact of industrial pollution on water bodies and strategies for pollution mitigation. She is currently working with Mu Gamma Consultants Pvt Ltd a environment consulting firm. Kriti holds a Ph.D. in wastewater treatment and bioremediation from Birla Institute of Technology, Mesra. Kriti has an impressive portfolio of research publications in esteemed national and international journals.

is now visualized through the rapid loss of sea ice, melting ice sheets and glaciers, rise in sea levels, and more intense heat waves. According to the Intergovernmental Panel on Climate Change (IPCC), global warming will worsen due to the implications of climate change, which go beyond temperature changes. Two degrees Celsius of warming could put up to 3 billion people at risk of increasing water scarcity (IPCC, 2021). Several parts of the globe have experienced either flooding or drought due to changing climate, which has also altered the water cycle and brought in heavy rains and altered rainfall patterns. Sea level rise is predicted to continue throughout the 21st century, which will exacerbate coastal erosion and cause more frequent and severe coastal flooding in low–lying areas. Extreme sea level events that previously occurred once in 100 years could happen every year by the end of this present century. The recent floods in Chennai, India in 2023 serve as both strong evidence that climate change is happening. These natural calamities pose enormous risks to human survival and cause environmental damage due to the devastating effects. Water sustainability is a significant factor in mitigating climate change. Therefore, sustainable water solutions need to be at the forefront of any country's climate roadmap.

The Challenges of Water Sustainability

The statistics from the United Nations highlights that 68% of the world population are projected to live in urban areas by 2050. This figure being a clear indicator that the demand for water, and usage is going to be exceptionally high, with the goal of attaining water sustainability becoming

Sustainable water management and Water security

more arduous. There are numerous challenges that are faced by communities worldwide in managing water resources in the face of climate change. The potential opportunities for innovation and collaboration that arise when addressing the issue of water sustainability within the framework of COP28 needs to be explored more effectively. Urban water systems encounter many obstacles, including the effects of climate change, excessive water use, contaminated surface and groundwater, antiquated or failing stormwater infrastructure, and the disorganised growth of cities. Moreover, mismanaged sewage, agricultural runoff, and waste from industries ending up in water bodies affect the ecosystem. The unequal allocation of water supplies has ended up in either water getting wasted or some areas experiencing long–term shortages. As a result of excessive groundwater extraction brought on by the water scarcity and contaminated surface water, the aquifers are drying up. the climate crisis implicitly suggests an impending water problem. The impact of climate change on essential resources including food, agriculture, and water is currently a hot topic of conversation worldwide. In the current era of climate change, navigating the water–food nexus is extremely difficult because it involves water, its availability and sustainability. Climate variability, including erratic rainfall and extreme weather events, exacerbates water and food insecurity and limits the ability of affected populations to adjust to these variations. Only about 0.5 per cent of water on Earth is useable, that is available as freshwater, which means climate change is further laying stress on the limited water resources, impacting the water supply. Over the past twenty years, terrestrial water storage as in soil moisture, snow and ice has dropped at a rate of 1 cm per year, posing a major threat for water security (United Nations). Climate change is the disruptive force that tends to break the balance between the nexus, complicating water and food insecurities with limited existent capacity to adapt to these fluctuations.

Plastic pollution is yet another significant issue in climate change. As most of the plastics in use are made from fossil fuels, their improper use and management leads to greenhouse gas emissions. The use of plastics in agriculture is highly prominent and offers numerous benefits such as increased crop productivity, greenhouse cover, irrigation, packaging of agricultural products and so on. Since modern agriculture relies mainly on single–use plastic, their indiscriminate disposal can result in microplastics getting accumulated in agricultural soils, thereby impacting the properties of soil and in turn the agricultural productivity. Microplastics get washed out of the soil through irrigation or precipitation into other ecosystems such as inland waterways and finally into coastal and marine environments. Degradation of plastics could potentially release harmful and possibly carcinogenic substances into the soils, which either penetrates the groundwater deep into the aquifers or is transported through runoff into the adjacent streams or waterways. Thus, oceans become the ultimate sinks of plastic litter emerging from agricultural activities and other illegitimate disposal. The ever–increasing use of plastics and their inappropriate disposal in landfills are subjected to various biochemical reactions, resulting in the release of toxic greenhouse gases such as methane, carbon monoxide, carbon dioxide, ammonia, and hydrogen sulfide. The resultant leachate from landfills contains microplastics that seep and contaminate the groundwater. There is still much to be resolved regarding the impacts of plastic waste on the environment, human livelihood, marine ecosystems, and terrestrial ecosystems.

Besides, the current issues of water quality and climate change are directly linked to the intricate system of emerging contaminants and persistent organic pollutants (POPs). POPs have a reputation for having detrimental and long–lasting effects on ecosystems. When they enter water sources, they increase the hazards to human health and aquatic life. Concurrently, newly discovered pollutants that are frequently disregarded in traditional regulatory frameworks cause water contamination and intensify environmental stress. Pollution caused by emerging contaminants disturb ecosystems and natural balances, endangering not only water supplies but also intensifying the effects of climate change. Addressing the relationship between new contaminants, water quality, climate change, and persistent organic pollutants becomes crucial as we navigate the complicated terrain of environmental concerns and move towards promoting a resilient and sustainable future.

Bridging the Gap

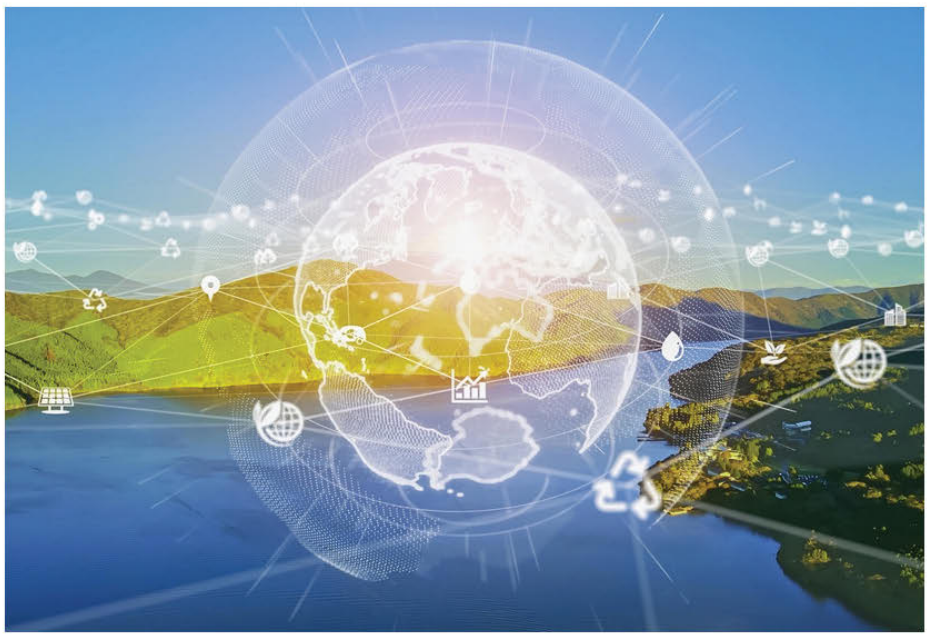
Despite the progress made during COP28 on the global water issue, there is still substantial work to be done to bridge the gap between the commitments made and actual implementation for attaining global water sustainability. This entails securing greater political will from states to prioritize water security and fulfilling the decisions made at COP28. Additionally, increased financial investment is crucial for climate change adaptation, water

management, and infrastructure. Sustainable agriculture, resilient food systems and climate are intricately linked together, and keeping them knitted together can help us achieve the commitment towards climate adaptation strategies and actions. Governments, businesses, non–governmental organisations, and communities must work together more closely to develop and execute practical solutions to water–related problems. There is a need to understand that we are a part of an ecosystem that requires us to balance competition and collaboration. Hence, there is a need to cultivate a collaborative and a co–creative mindset as well as identifying vantage points that can view the entire ecosystem as a whole. To transition to a collaborative and a co–creative mindset will require an initial assessment as to why collaboration is necessary rather than a limited focus on how to collaborate.

Furthermore, the adoption of novel methodologies and technological advancements for the conservation of water resources, enhancement of efficiency, and readiness for the consequences of climate change, can foster innovation. From nature–based solutions to enhancing water infrastructure, a holistic approach that considers both adaptation and mitigation strategies can contribute towards attaining sustainability.

Using public awareness campaigns, outreach programmes, seminars, and instructional materials, businesses, communities, and individuals can be made aware of the advantages of water conservation techniques such as rainwater collecting, greywater reuse, and treated water reuse. This will help to promote water–saving measures and result in economic and resource savings, which will help drive sustainable solutions. These water conservation techniques should be encouraged by government policies and incentives such as subsidies, tax credits, or refunds. Regulatory frameworks are essential for setting guidelines and standards that guarantee the effective and safe application of sustainable water policies.

Building robust water infrastructure and promoting sustainable water practices are



the two benefits of integrating rainwater harvesting, and greywater/ treated water reuse into urban planning and construction. Integrating these features in building codes guarantees their widespread application and promotes accountability and ownership.

The success of these efforts depends on the active participation of citizens in project planning, development, and execution, highlighting the importance of community engagement. With widespread adoption, educational initiatives, supportive legislation, and involved community members, these practices have the potential to transform water management, alleviate water shortages, and contribute to a more sustainable future.

Bridging the gap between climate change and global water sustainability calls for the need of setting ambitious targets for water use efficiency, promoting sustainable agricultural practices and fostering international cooperation for transboundary water management.

Conclusion

Water–related challenges are becoming more pressing and complex due to climate change. Although great strides have been made on water–related aspects during COP28, there is still a gap between what has been achieved and is believed has been accomplished. Strategies to mitigate climate change should place a high priority on water, and not just highlight its shortcomings. The current water dilemma is nothing more than mismanagement of water resources exacerbated by the reverberations felt from climate change. The current imperative is sustainable water management, which can help in balancing the water needs of ecosystems, industries, communities, and agriculture. Achieving SDG 6 (clean water and sanitation for all) is critical to achieving all other SDGs, since water is essential to development in all its forms. Sustainable water is the challenge of the current decade, and hence, alternative water sources and a shift in perspective is a dire necessity. The use of sustainable water management techniques are effective ways to reduce water stress as well as improve resource and economic efficiency.

The world is about to experience a water revolution, entering a new era in which water becomes one of the most precious resources and is necessary for survival. It is more crucial than ever to coordinate efforts to address challenges related to management of water and emerging contaminants. The COP28 initiative highlighted how critical it is to attain water sustainability and resource security by encapsulating them into the international climate change goals and strategies.

URBAN AND INDUSTRIAL SUSTAINABLE WATER MANAGEMENT

Water is a vital resource for both urban and industrial sectors. However, urbanization and industrialization have put a strain on water resources, making it increasingly important to adopt sustainable water management practices.

Mandarr Kkamthe
Industry Expert–Water

I have been working in the water sector for 13 very fruitful years. I was previously associated with organizations like JUSCO, Suez Environment, Vishvaraj Environment Pvt. Ltd., Siemens etc. During this time, I achieved much in terms of expanding program offerings and enhancing the quality of existing Systems. Some of my main skills include the following:

- Expert in developing and implementing a strategy for program teams, as well as developing robust
- mitigation plans.
- Demonstrated ability to liaise with different engineering teams to increase system awareness.
- Able to report on system performance, and identify opportunities for continual improvement.
- In–depth knowledge of developing new programs to support the strategic direction of the organization.

Challenges of Urban and Industrial Water Use

- **Urban water demand:** Cities are growing rapidly, and with them, the demand for water. This increased demand can lead to water scarcity, particularly in arid regions.
- **Industrial water pollution:** Industries generate large amounts of wastewater, which can pollute water sources if not properly treated.
- **Climate change:** Climate change is exacerbating water scarcity and pollution. Droughts and floods are becoming more frequent and intense, and rising sea levels are threatening coastal water supplies.

Sustainable Water Management Practices

There are a number of sustainable water management practices that can be implemented to address these challenges. These practices can be broadly categorized into three areas:

- **Water conservation:** Water conservation is the practice of using water efficiently to reduce unnecessary water usage. It is a crucial aspect of environmental sustainability, as it helps to preserve this vital resource for future generations. Water conservation can be implemented in various ways, including:

Reducing household water consumption:

- Install water–efficient appliances, such as low–flow showerheads and toilets.
- Fix leaky faucets and pipes promptly.
- Take shorter showers and avoid letting water run unnecessarily.
- Use water–efficient landscaping techniques, such as xeriscaping.
- Collect rainwater for irrigation and other non–potable uses.

Promoting industrial water conservation:

- Implement water audits to identify and address water inefficiencies in industrial processes.
- Adopt water–efficient technologies and practices.
- Reuse wastewater whenever possible.
- Recycle industrial water for non–potable uses.
- Raise awareness among employees about water conservation.

Enacting water conservation policies:

- Implement water pricing policies that encourage conservation.

- Establish water conservation regulations for industries and households.
- Invest in water infrastructure to improve efficiency and reduce losses.
- Promote public education and awareness campaigns about water conservation.

Adopting water–sensitive urban design:

- Incorporate green infrastructure, such as rain gardens and permeable pavements, to manage stormwater runoff and reduce reliance on traditional drainage systems.
- Design buildings to minimize water consumption and maximize water reuse.
- Create green spaces that conserve water and promote biodiversity.

Supporting agricultural water conservation:

- Implement precision irrigation techniques to optimize water use for crops.
- Adopt water–efficient agricultural practices, such as drip irrigation and cover cropping.
- Encourage the cultivation of drought–resistant crops.
- Promote sustainable agricultural practices that conserve water and protect watersheds.

By implementing these water conservation measures, we can collectively reduce our water footprint, ensure a sustainable water supply, and protect this precious resource for future generations.

- **Water reuse:** Water reuse, also known as water recycling or water reclamation, is the process of treating wastewater to make it suitable for beneficial purposes other than potable drinking water. This practice plays a crucial role in sustainable water management, as it helps to conserve freshwater resources and reduce the reliance on traditional sources.

Benefits of Water Reuse

Water reuse offers several significant benefits, including:

- **Conserving freshwater:** By using treated wastewater for non–potable purposes, we can significantly reduce the demand for freshwater, which is often a scarce and precious resource.
- **Enhancing water security:** Water reuse can help to ensure a more secure water supply, particularly in regions facing water scarcity or climate change–induced droughts.
- **Protecting water sources:** By diverting wastewater for reuse, we can reduce the load on freshwater sources, allowing them to recover and replenish naturally.
- **Improving environmental sustainability:** Water reuse helps to conserve water resources and reduce the environmental impact of water treatment and waste disposal.
- **Promoting economic development:** Water reuse can contribute to economic growth by reducing reliance on expensive imported water and enabling new water–intensive industries to operate sustainably.

Types of Water Reuse

Water reuse can be categorized into different types based on the intended use of the treated wastewater:

- **Direct potable reuse (DPR):** This is the highest level of water reuse, where treated wastewater is directly incorporated into the potable water supply. DPR is typically considered safe for certain applications, such as industrial processes, irrigation of edible crops, and non–potable public uses, such as toilet flushing and landscaping.
- **Indirect potable reuse (IPR):** In IPR, treated wastewater is blended with potable water sources before being distributed to the public. This approach allows for greater water conservation while ensuring the safety of the drinking water supply.
- **Non–potable reuse:** This is the most common type of water reuse, where treated wastewater is used for non–drinking purposes, such as irrigation, industrial processes, and environmental restoration.

Challenges and Considerations

While water reuse offers significant benefits, there are also some challenges and considerations associated with its implementation:

- **Public acceptance:** Public perception and acceptance of water reuse are crucial for its widespread adoption. Addressing concerns about water quality and safety is essential for gaining public trust.
- **Cost considerations:** The cost of water treatment and infrastructure for reuse can vary depending on the technology and scale of the project. Economic feasibility is a key factor in determining the viability of water reuse projects.
- **Regulatory oversight:** Clear regulations and guidelines are necessary to ensure that water reuse practices meet environmental and public health standards.
- **Water quality monitoring:** Ongoing monitoring of the quality of treated wastewater is essential to ensure its suitability for intended reuse purposes.
- Public education: Extensive public education campaigns are crucial to inform the public about the benefits and safety of water reuse practices.

Despite these challenges, water reuse is a vital component of sustainable water management strategies. By overcoming these obstacles and promoting informed public engagement, we can harness the potential of water reuse to conserve freshwater resources, protect the environment, and ensure a sustainable future for water use.

Water protection: Water protection is the practice of safeguarding water resources from pollution and ensuring their long–term availability and quality. It encompasses a wide range of activities and measures aimed at preventing or minimizing the contamination of water sources, both surface and groundwater.

Importance of Water Protection

Water is an essential resource for life, supporting human health, agriculture, ecosystems, and industrial activities. Protecting water resources is crucial for several reasons:

- **Human health:** Clean water is essential for human health, as it prevents waterborne diseases and promotes overall well–being. Contaminated water can lead to a wide range of health problems, including diarrhea, cholera, and hepatitis.
- **Environmental protection:** Water pollution can have devastating impacts on aquatic ecosystems, harming aquatic plants and animals and disrupting the natural balance. Protecting water resources helps to safeguard biodiversity and maintain healthy ecosystems.
- **Economic sustainability:** A clean and reliable water supply is essential for economic growth and development. Water pollution can have significant economic costs, affecting agriculture, industries, and tourism.

Key Principles of Water Protection

Water protection encompasses a set of principles that guide actions to safeguard water resources:

- **Prevention:** The most effective approach to water protection is to prevent pollution from occurring in the first place. This involves implementing pollution control measures, reducing the use of hazardous substances, and promoting sustainable practices.
- **Source water protection:** Protecting the sources of drinking water is critical. This involves managing land use activities in watersheds, preventing contamination from agricultural practices, and ensuring proper wastewater treatment.
- **Water conservation:** Conserving water reduces the demand for freshwater resources, thereby reducing the potential for pollution. Water conservation measures include reducing household water consumption, using water–efficient appliances, and adopting drought–tolerant landscaping.
- **Water quality monitoring:** Regularly monitoring water quality is essential to identify and address pollution problems promptly. Monitoring data can inform remedial actions and track progress in water protection efforts.
- **Public education and awareness:** Raising public awareness about water protection is crucial for promoting responsible water use and encouraging participation in water conservation efforts. Public education campaigns can help individuals and communities understand the importance of water protection and adopt sustainable practices.

Water protection is essential for safeguarding human health, ensuring environmental sustainability, and supporting economic development. By implementing effective water protection measures, adopting sustainable practices, and raising public awareness, we can work together to protect this precious resource for future generations.

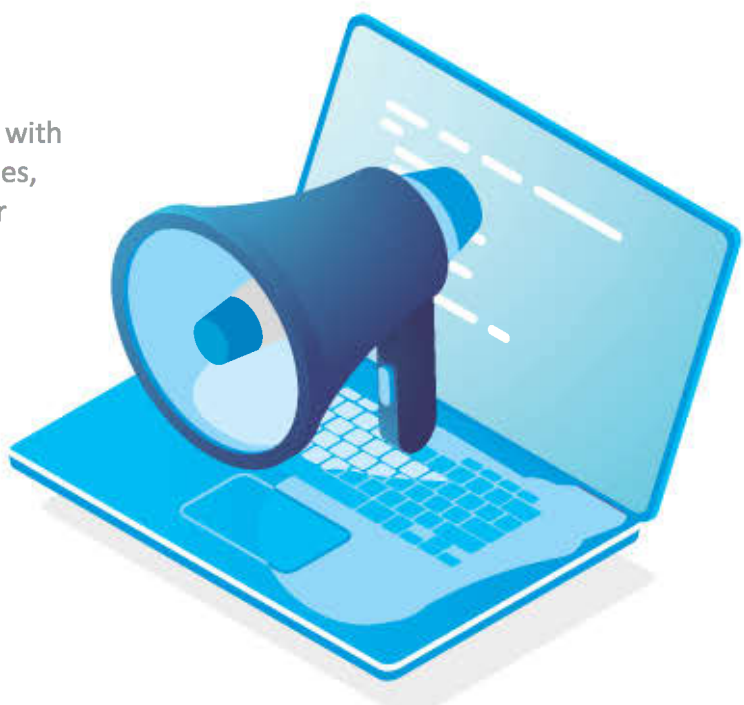
Conclusion

Sustainable water management is essential for ensuring a sustainable future for urban and industrial areas. By implementing a variety of sustainable water management practices, cities and industries can reduce their water footprints, protect water resources, and adapt to the challenges of climate change.

About Contacts Pricing Partners

ABOUT US

WaterAge monthly magazine provide an established audience of corporate deal makers with the most up-to-date information on technologies, trends, and the updates of water & wastewater industry.



Try it now

BANNER ADS ON
WEBSITE

Be seen where it really matter!!
Create the buzz in water market.

Advertise with us on our website:

www.waterage.in

and reach out to 1500 quality readers daily!

Find us on:

SHUDH JAL FOUNDATION
JAL AAJ AUR KAL

805, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi – 110 066
M.: +91 99589 60470, E-mail: enquiry@waterage.in, Web.: www.waterage.in

DECARBONISE WATER PUMPING SYSTEM

Tariq Siddiqui
Chief Strategist, TS Advisory Services

About the author:
With a distinguished background in media, he has dedicated a significant portion of his career to the water sector. As the Chief Strategist at TS Advisory Services, he has played a pivotal role in developing, evaluating, and defining marketing and communication strategies across various industries. His extensive knowledge and strategic acumen have proven instrumental in driving growth and success in the ever–evolving landscape of the water sector.

Decarbonizing built infrastructure is a growing concern for the nations across the globe. But focusing on carbon emissions alone is no longer sufficient; the climate change crisis is much deeper and interlinked with several other factors. As the world accelerates towards net zero, technology–based solutions are poised to provide necessary emissions reductions and much desired energy efficiency and longevity of the infrastructure. The UN Climate Conference, COP26, brought these ideas together, with many nations and organizations pledging to reduce the carbon emissions and adopting sustainable practices to safeguard the environment.

There is an urgency of protecting nature and its habitats. It is predicted that over one million species could go extinct in coming decades. The threat of extreme weather conditions hangs over every corner of the world, sustainability and resilience of facilities is no longer a choice but a necessity. World Economic Forum projecting that approximately half of the global Gross Domestic Product (equivalent to US$44 trillion in economic value) relies significantly or moderately on the services provided by nature.

Carbon Footprint of Water System

Pumping Station for Drinking Water Supply

Adequate and quality water supply being the harbinger of growth, water infrastructure is an essential part facilitating the reliable supply and distribution for various purposes. This crucial network comprising pipes, pumps, and treatment plants plays a pivotal role in shaping the trajectory of life ahead. Efficient and resilient infrastructure is vital for public health, environmental sustainability, and overall economic development.

Pumping systems, essential components of water infrastructure, represent a significant aspect of energy consumption, accounting for 20 to 60 percent of the total global electrical energy usage. The Bureau of Energy Efficiency highlights that pumps are one of the least efficient components within a water supply system. Considering the substantial electricity consumption associated with pumping systems, even minor enhancements in efficiency have the potential to result in substantial electricity savings.

Energy Efficiency Measures

One of the most effective ways to reduce carbon emissions in water pumping station is to enhance energy efficiency. Upgrading pumping stations with energy–efficient technologies, such as iPUMPNET, can significantly decrease energy consumption by upto 25%. This IIoT enabled system offers insights into energy usage patterns and opportunities for energy conservation. By analyzing historical data, iPUMPNET identifies areas where pumps can be operated more efficiently, reducing the amount of energy it consumes. It intelligently adjusts pump speed, flow rates, and other operational parameters based on real–time demand and efficiency criteria. If iPUMPNET is implemented across all water pumping stations in India, it is projected that approximately 5 gigawatts (GW) of energy could be saved annually. In terms of monetary benefits, this translates to a significant saving of INR 250 billion for water utilities. These funds could be redirected towards fulfilling other essential purposes, contributing to broader water sustainability and resource optimization.

Reducing Carbon Emission

India has made a commitment to achieve Net–Zero Emissions by 2070 at the COP26. It has pledged to reduce the emissions intensity of its

Reduce Carbon Footprint

Water Pumping System

GDP by 45% by 2030, compared to the 2005 level. Reducing carbon footprint is a crucial goal for India as it helps mitigate the impact of climate change, improves public health, boosts economy, and preserves biodiversity.

Reducing carbon emissions in water pumping stations is a multifaceted challenge that requires a combination of technological advancements, operational improvements, and strategic planning and advanced monitoring and control. Embracing energy–efficient technologies like iPUMPNET, significantly contributes to reducing the carbon footprint of pumping systems. Implementation of iPUMPNET across all water pumping stations in India is estimated to save almost 5 GW of energy. Based on a conservative estimate, one MW reduction in energy consumption at a pumping station can save approximately 612 tonnes of CO2 emissions, equivalent to planting 21,500 trees.

By implementing iPUMPNET in all water pumping stations in India, it is projected that 3.06 million tonnes of carbon emissions could be reduced, making a significant contribution towards achieving the vision of the Hon'ble Prime Minister to make India Net–Zero Emissions by 2070.

Water Supply Pumping System

Ecosystem Marketplace has reported that in 2021, the total recorded carbon credit transactions globally were valued at US$1.98 billion (INR 163.42 billion). This would mean the average price of a carbon credit was US$4 (INR 332) in 2021. Upon evaluating the worth of India's retired credits, it must have garnered up to US$652 million (INR 53.76 billion). India has become a lucrative market that developers anticipate will expand further as the urgency of the climate change crisis increases, prompting companies to actively pursue net–zero emission goals.

India's carbon market is valued at US$1.2 billion (INR 98.94 billion) or possibly more given the current market rates. At this rate, the saved carbon emission from the water pumping stations only after implementing the iPUMPNET is 3.6 million carbon credits with a face value of US$ 14.4 million (INR 11.96 billion) every year.

Way Forward

In its efforts to bring about a visible impact, Pump Academy Private Limited under the distinguished leadership of its Chairman, Mr. Anil Sethi, has a wealth of experience from executing over 500 water supply projects and installing pumping stations across India. The introduction of iPUMPNET, an innovative IIoT–based solution, marks a significant step in optimizing pumping station operations. iPUMPNET integrates cutting–edge technology to enhance energy efficiency, transforming conventional pumps into intelligent and responsive devices. Pump Academy's objective is to revolutionize the management and operation of pumping stations in India through the implementation of iPUMPNET.

In India, prioritizing energy efficiency and reducing carbon emissions is crucial, aligning with the nation's ambitious economic goals. As India aspires to achieve a $5 trillion GDP in the near future and aims to become the world's third–largest economy by 2030, further targeting to reach $40 trillion by 2047, at the centenary year of India's Independence, sustainable and environmentally conscious practices are essential. Enhancing energy efficiency not only contributes to economic growth but also aligns with global efforts to combat climate change. It reflects India's commitment to a green and sustainable development path, ensuring long–term prosperity while enhancing the environmental sustainability.

Pump Academy is fully prepared to play a vital role in achieving these objectives by optimizing pumping stations. Through the initiative, it aims to reduce dependence on fossil fuels and minimize carbon footprints, contributing significantly to the conservation of valuable resources. Their commitment lies in fostering sustainable practices and advancing environmentally conscious solutions within the realm of pumping station operations. Through the efforts of the company by implementing iPUMPNET, valuable resources are conserved, aligning with broader sustainability goals and contributing to a greener and more environmentally responsible future.

"The electronics sector will define India's journey in Amrit Kaal": Shri. Piyush Goyal, Minister of Commerce & Industry at 31st Convergence India & 9th Smart Cities India

- **Over 1,000 companies from 30 countries, including 250 startups ignite the spark for India's tech revolution towards an inclusive, secure, and sustainable digital frontier.**
- **The 3–day expo also hosted 50 conference sessions with 200+ speakers on issues impacting the Technology and Smart Cities ecosystem in India.**

New Delhi, 22 January 2024: India's largest tech & infra event, the 31st Convergence India and 9th Smart Cities expo is a collaborative effort of India Trade Promotion Organisation (ITPO) and Exhibitions India Group (EIG) that focuses on transformative technologies and solutions shaping India's future by creating an ecosystem that supports initiatives such as 'Digital India, 'Make in India' and the 'Smart Cities Mission'.

The 3–day expo was inaugurated by Lt. Gen. Gurmit Singh, Hon'ble Governor, Government of Uttarakhand. In alignment with the current year's theme, 'Innovation Driving Sustainability: Realise the Power of Tomorrow – Today,' the conferences saw spokespersons from crucial ministries providing insights into the progress of the ongoing 'Digital India' and Smart Cities initiatives. Representatives from prominent Indian and global brands shared their vision, strategies, and discussed the industry expectations from the Government to assure continued progress across sectors. At the same time, the expo provided equal opportunities for big brands and local players to showcase their product line and attract business and investment. Meanwhile, the 250+ startups presented solutions aimed at catalysing the transformation of India into a digitally empowered society and knowledge–based economy.

Shri. Piyush Goel, Hon'ble Minister of Commerce & Industry, Consumer Affairs, Food & Public Distribution, and Textiles also visited the event during the Industry Night reception and said, "The electronics sector is growing from strength to strength both in the services and hardware sector, which will define India's journey in the Amrit Kaal." He also said, "India's progress is propelled by the dynamic contributions of its youth and women. The seamless integration of new–age technologies in governance and manufacturing will empower citizens, making them active participants in shaping a brighter future".

Kunal Kumar, Joint Secretary & Mission Director, Smart Cities Mission, MoHUA, while addressing a large gathering at the expo, said that technology is crucial for the success of the Mission. "We have seen solutions emerging that are focussed on India. There are companies which are producing excellent results, despite all kind of odds, data and financial constraints. We have to look at tech that augments the capacity of existing individuals to do better. Smart Cities is not a choice, It's the only way to go".

Among the highlights of the conference were the Investors Pitch competition and Fintech & Smart Cities awards. The Investor's Pitch in the Startup arena saw 10 startups showcase innovative ideas to a distinguished jury. Products and ideas were shared across domains such as the healthcare sector, sustainable construction, integrated motor solutions, organic farming, and video chatbots. The winner received the "Prem Behl's Excellence Award", a cash prize of Rs. 1 Lakh from Exhibition India, and a fully funded participation in the reputed Expand North Star Exhibition, Dubai. The highly popular Fintech, Smart Cities & Startup awards across 27 categories got nominations from 1,000+ companies across diverse segments. The Special Startup Hub Award was given to Kerala Startup Mission

Sharing his views about the expo, Pradeep Singh Kharola, CMD ITPO, said, "I appreciate the excellent work done by Convergence India who have been with us for the last 31 years. Every year, our partnership gets stronger and I urge them to increase the size of the show next year to occupy the entire space in Bharat Mandapam".

Ms. Chandrika Behl, Managing Director, Exhibitions India Group, said, "The Convergence India and Smart Cities India Expo has played a

Left to Right: Ms. Chandrika Behl, Managing Director, Exhibition India Group, Mr. Dhruv Behl, Managing Director, Exhibition India Group, Mr. Sergey Cheremin, Minister of the Government of Moscow, Head of Department for External Economic & International Relations of Moscow, Ms. A. Dhanalakshmi, Joint Secretary, Department of Science & Technology, Ministry of Science & Technology, Shri Pradeep Singh Kharola, IAS (Retd.), CMD, India Trade Promotion Organisation presenting Prem Behl Excellence Award to Gohemp Agroventures Pvt. Ltd.

pivotal role in fostering economic growth and national development by facilitating opportunities in the rapidly evolving landscape of digital technologies. Our expos serve as vital platforms for domestic brands to exhibit progress in technology, smart cities, and startup domains. Furthermore, the expos offer a valuable space for international entities to forge strategic partnerships and explore business prospects in the Indian market. We express our gratitude to the dignitaries, speakers, and expo participants for their valuable insights and contributions, which significantly contributed to the success of this year's event".

About Convergence India:
Since 1992, Convergence India has heralded the telecom and digital revolution in India. It is the country's largest technology and infrastructure expo, providing a platform to showcase 'Brand India' by supporting the 'Make in India' and 'Digital India' campaigns. Convergence India is at the forefront of promoting technological advancements in the fields of Telecom, Satcom, Broadcast, Wired & Wireless technologies, 5G & 6G networks and IT solutions.

About Smart Cities India:
The Smart Cities India expo displays India's emerging modernisation and development landscape that aims to deliver better citizen–centric services across the country. The expo showcases the integration of transformative technologies with the key pillars of urban development, i.e., green buildings, rooftop solar, renewable & clean energy, clean environment, clean water, water conservation, urban mobility, and the use of smart ICT solutions for optimising resources that make cities smart and sustainable.

For media queries, please contact:
Shrutil shruti@onpurposeconsulting.in | +91–97111 91616
Aryanl aryan@onpurposeconsulting.in | +91–98711 15926

The past one year has seen a series of changes at the top, with water companies hoping to build on the expertise and cross–organizational experience of senior water professionals. A look at some of the leaders in the global water sector…

Subhash Sethi
Chairman, SPML Infra Limited

Dharmendra Pratap Singh
Head of Infrastructure Solutions & Senior, Vice President, Voltas Ltd.

Dr. Bhakti Devi
Founder, Jalsmruti

Siddharth Bansal
Director & CEO,
Skipper Limited – Polymer division

Gopal Madabhushi
Veolia Water Technologies & Solutions

Ganesh Shankar
Founder and CEO, FluxGen Technologies

Arun Lakhani
Chairman & Managing Director, Vishvaraj Infrastructure Ltd.

A. Mohan, Co–Founder, WSAFE (WaterSpaceAirFireEarth) Sustainability Services

SPLASH Makers
Best of 2022–23

Anil Sethi – Chairman
Pump Academy Private Limited

Tariq Siddiqui
Chief Strategist, TS Advisory Services

Abhijeet Suresh Ghone
Graduated from IIT Roorkee with a Master of Technology (M. Tech)

Sandra DiMatteo, Industry Marketing Director, Bentley Systems – Water Infrastructure

Rajul Parikh
Co–Founder, Alfaa UV

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

Dave Purkiss
Vice President, NSF International

Marcos Bensoussan
Director Water Division – LATAM – NSF

Mangesh Wange
CEO, Swades Foundation

Mandarr Kkamthe
Industry Expert–Water

Sarang Kulkarni – Subject Matter Expert (Water Resources), Bharatiya Jain Sanghatana (Bjs)

Mr Prabhat Pani
Executive Director – CISD, SPJIMR

Rishabh Sethi
CEO, JWIL Infra Limited

Abdul Rahman Mohammed
CEO, Sahara Industry

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

Dr. Subramanya Kusnur
Founder Chairman and CEO, AquaKraft Projects Pvt. Ltd.

Suhas P. Wani – Former Director, Research Program Asia and ICRISAT Development Centre

Dr. Mayur J. Kapadia – former Additional General Manager & Head, Quality Control Division, GNFC Ltd., Bharuch, Gujarat

Yoginder Kumar Sharma
Consultant & Faculty, Civil Design & Underground Construction

Nandita Kanwar
Director Business Strategy & Growth, Hydromo

Vinayak Kadam,
General Manager – Operations, HWT

Sagnik Das

SUBODH DHIMAN
Director, RD Enviro Engineers & Consultants

Amit Udgirkar
Owner,Raditech Solutions

SPLASH Makers
Best of 2022–23

Shrinath Garg – Responsible for Business Developments activities in India & neighboring countries for Abengoa

Dr. Sameer Arora – Technical Lead, Water and Waste Management, JHPIEGO India, New Delhi 110032, India

Dr Harinarayan Tiwari
PhD (IIT Roorkee) Co–Founder & Managing Director Floodkon Consultants LLP

Aravind Natarajan
CEO & Co–founder
KarioT – Smart Water Revolution

Himanshu Gupta – Director Sales – South Asia (Mid–Market) Veolia Water Technologies & Solutions

Isha
Research intern with Mu Gamma, Gurgaon, India

Makarand Madhao Ghangrekar
Professor, Department of Civil Engineering, Indian Institute of Technology Kharagpur

Anil Dhanda
Department of Civil Engineering, Indian Institute of Technology Kharagpur

Ashutosh Vadanagekar,
Director, Amalgam Biotech

Swati Joshi,
R&D Activities, Amalgam Biotech

Girish Kale,
Sales Director, Muncipal

Mr. Jitendra Katre

Dr. Amit Chaudhari – PMP® LEED AP® Sr. Product Manager–Water at Asian Contec Ltd. (Stanlay)

Neha Lakhwan

Anagha Krishnan, Research Associate, Mu Gamma Consultants Pvt. Ltd. Gurugram

Manasa S. Shastri Marketing Lead at FluxGen

Rajesh Narayan (Business Development Manager, at Amalgam Biotech)

Sanket Chawke – Assistant Manager & Application Specialist, Amalgam Biotech

Chirag Bhalla Co founder & Director

Harendra Pratap Singh Co founder & Technical Director

Ria Mukherjee Associate – Editor WaterAge

Aude Camus Senior Solution Marketer, Bentley Systems

Monika Singh Sr. Application Engineer, Amalgam Biotech – Pune

Anil Guptha Founder of Aqua Kline

SPLASH Makers
Best of 2022–23

Dattaram D. Rane

Dr Kriti Akansha – Consultant, Mu Gamma Consultants Pvt. Ltd., Gurugram.

Dirk Vriesa
Scientist, KWR Water Research Institute

Marcel Zandvoort
Researcher, Waternet

Alex van der Helm
Consultant – Water Technology & Innovation, Waternet

Johann Poinapen
Senior Researcher, KWR Water Research Institute

Jitendra Katre

Vinay Chataraju
Co–Founder & Head Business, Kritsnam Technologies Pvt. Ltd

Sameer Patwa
Managing Director, SAM ENVIRO

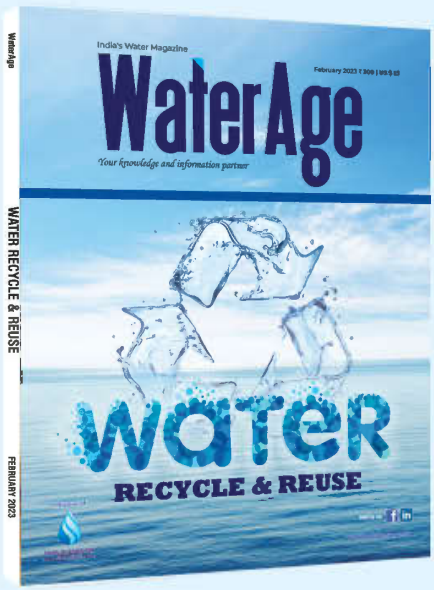
Anjali Porwal
Quality & Technical Manager, District–Level Water Testing/ Analysis Laboratory, U.P. Jal Nigam

Vincent Boks
Managing Director EMEA, Water Division, NSF

Dr. Mohit Sharma
Communication Specialist, NMCG

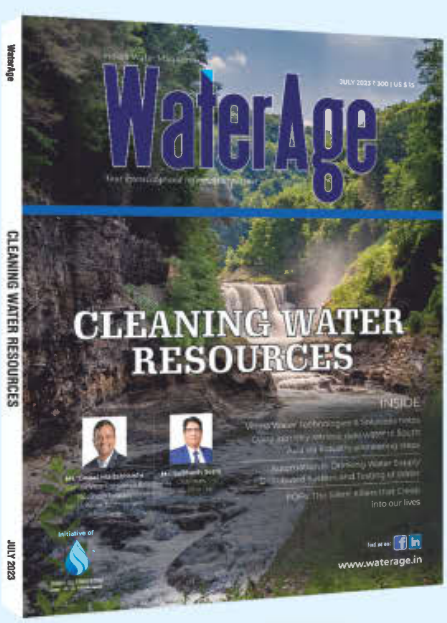
January 2023

February 2023

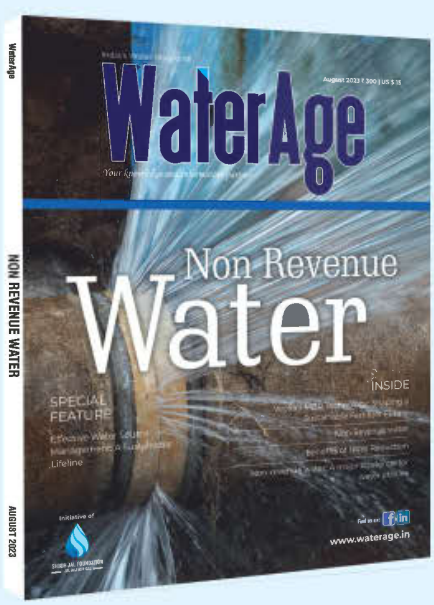


March 2023

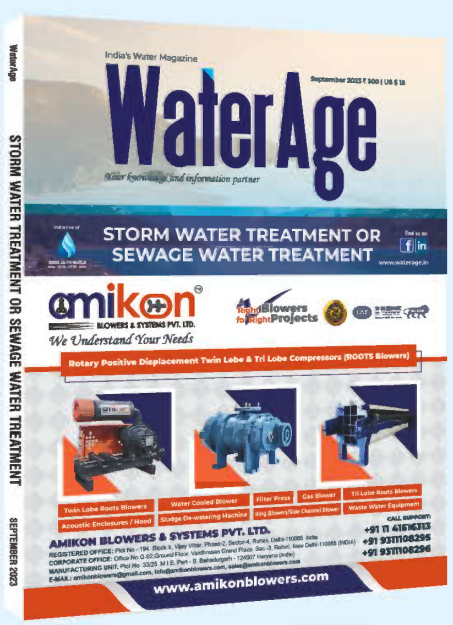
July 2023



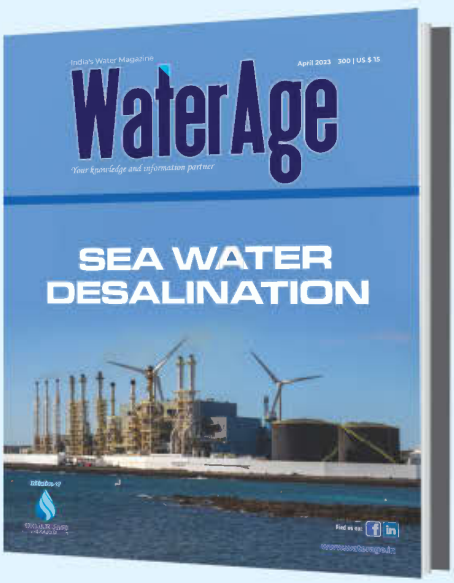
August 2023



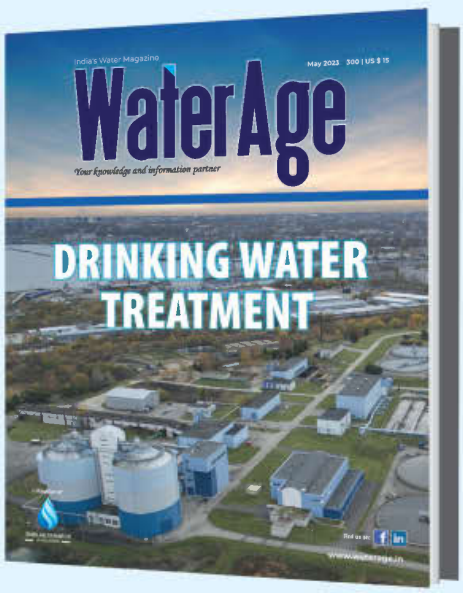
September 2023



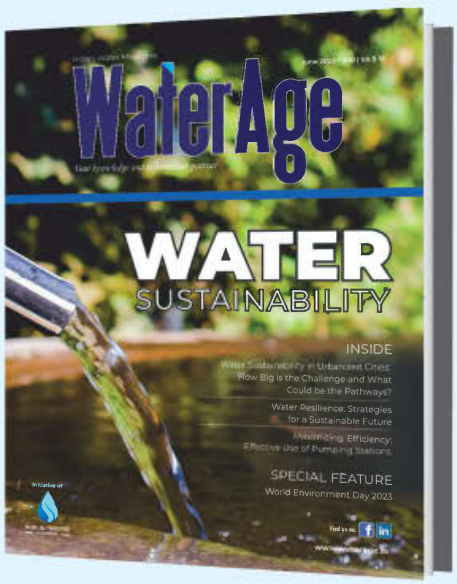
April 2023



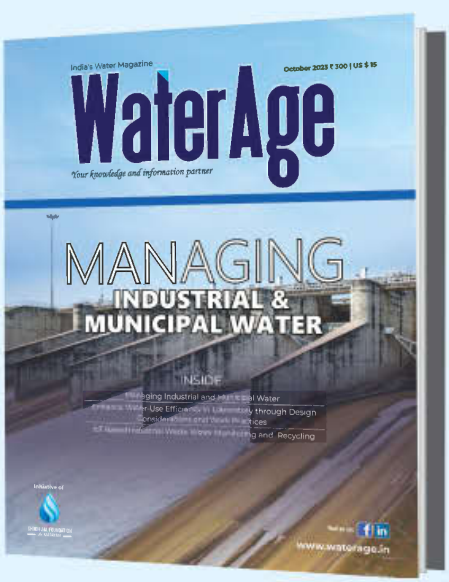
May 2023



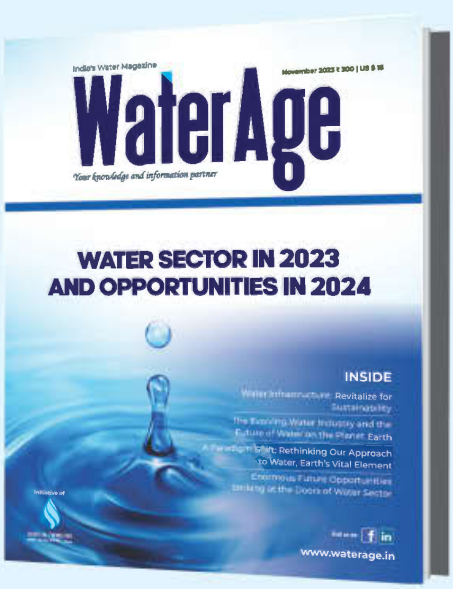
June 2023



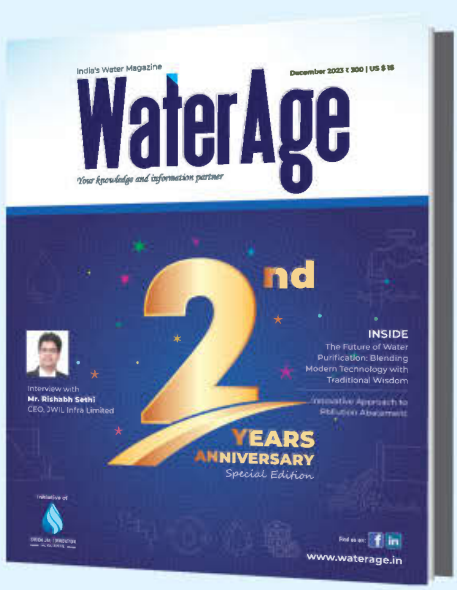
October 2023



November 2023



December 2023



Liquiclear® NATURALLY PURE

Evolving Trends and Future Prospects:

Indian Purified Water Sector in 2023 and Opportunities in 2024

Navigating through the waves of 2023, the Indian purified water sector steers amidst transformative changes and an escalating demand. This critical industry plays a pivotal role in ensuring access to safe and clean drinking water for millions. Being among the top 10 nations globally endowed with abundant water resources, India offers unmatched prospects. Its yearly utilisation of 750 billion cubic metres of freshwater, projected to escalate to 1.5 trillion cubic metres by 2030, signifies immense potential.

With growing water scarcity, pollution concerns, and technological advancements, the industry is expected to witness revolutionary prospects by 2024. In this very context, Liquiclear's LDI technology looks all set to create a revolution in the purified water sector. Let's dig into the details in this article.

Liquiclear's LDI Technology: The Future of Sustainable Water Purification in India

Over the past year, India's water purification sector has seen a significant upsurge in innovative technologies aimed at addressing the country's pressing water quality concerns. The market for water purifiers in India was valued at US$3070.7 million in 2023. With a growth rate (CAGR) of 9.1% from 2024 to 2032, the leading market research firm IMARC Group projects that the market will reach US$ 6880.3 million.

In the year 2023, significant strides have been made in witnessing pioneering advancements, notably highlighting the revolutionary potential of Liquiclear's liqui-deionization (LDI) technology. Specifically, LDI technology has surfaced as a transformative force, offering unmatched efficiency and sustainability in water treatment.

LDI technology combines the principles of deionization, presenting a novel approach to removing impurities and contaminants from water sources. Unlike other conventional methods, LDI technology showcases remarkable efficiency in purifying water, eliminating even the most stubborn pollutants, and balancing essential minerals to produce high-quality potable water.

Exploring Liquiclear's LDI Water Purification and LDISF Water Softening Technology

Liqui-deionization (LDI) technology utilizes an electrical potential disparity method involving three sequential steps to eliminate impurities and ions from water, presenting a groundbreaking approach to water purification. This process commences with absorption, followed by desorption and subsequent backwashing.

Liquiclear establishes a new standard with its state-of-the-art LDI technology designed for electronic water purification, preserving essential natural minerals while boasting an impressive 67% reduction in energy consumption and a 50% increase in water production. This pioneering system continuously adjusts Total Dissolved Solids (TDS) levels, ensuring consistently high-water quality.

Furthermore, Liquiclear's LDISF technology for water softening achieves an 85% decrease in hardness without relying on resins or salt, concurrently reducing TDS by 50%. What's more, easy installation and minimal upkeep make these systems a hassle-free choice for consumers seeking optimal water quality.

Revolutionising Water Purification: The Rise of Liquiclear's LDI Technology

Amidst the persistent pursuit of achieving cleaner and safer drinking water, liqui-deionization (LDI) technology stands out as a revolutionary solution, providing an effective, economical, and environmentally friendly option. As discussions persist
regarding various water purification methods, Liquiclear's LDI Technology emerges as a compelling alternative to traditional
purification systems, showing great promise in transforming the landscape of water treatment.

Energy Efficiency:

Unlike conventional purifiers, LDI Electronic Water Purifier boasts remarkable energy efficiency. While conventional systems demand substantial energy to push water through nano-sized membranes, resulting in higher electricity bills, LDI Electronic Water Purifier employs a more efficient process, significantly reducing energy consumption. This not only saves costs but also contributes to a more sustainable and environmentally conscious water purification method.

Reduced water waste:

In comparison to the alarming water waste associated with traditional systems, LDI Electronic Water Purifier significantly minimises waste. By curbing excessive flushing, it conserves water resources, making it a responsible choice, especially in regions grappling with water scarcity.

Faster Operation:

LDI Electronic Water Purifier outpaces conventional systems in water purification speed. Its efficient removal of impurities and ions enables faster operation, ensuring quicker access to clean, safe drinking water—particularly advantageous in high-demand scenarios.

Membrane-Free Approach:

A significant limitation of conventional purifiers lies in their dependence on nano-sized pore membranes, which are susceptible to clogging and inefficiencies in filtering certain impurities. In contrast, LDI Electronic Water Purifier doesn't rely on membranes. Instead, it employs ion-exchange resins and deionization processes for comprehensive water purification, eliminating the need for membrane replacements and lowering long-term maintenance costs.

Tunable Total Dissolved Solids (TDS):

The flexibility of LDI Electronic Water Purifier allows users to tailor the Total Dissolved Solids (TDS) in their purified water. This feature ensures water is free from contaminants while retaining natural minerals, enhancing taste and quality. Unlike RO systems, which can strip essential minerals, LDI Electronic Water Purifier offers a satisfying, natural taste.

Opportunities and Vision for LDI Technology in 2024 and Beyond

The overarching goal of LDI Technology is to provide a groundbreaking, low-maintenance solution for innovative water purification. Its aim is to deliver safe, mineral-rich water to households without the drawbacks of traditional systems, ensuring water safety while preserving essential minerals, thereby redefining the accessibility and quality of clean drinking water for all.

As we enter 2024, the Indian water purification sector stands on the precipice of transformative growth. The opportunities presented by LDI technology in terms of LDI Electronic Water Purifier and LDISF Electronic Water Softener are vast and multifaceted, offering prospects for technological advancements, market expansion, collaborative initiatives, and sustainability focus.

Continuous research and development efforts aim to further enhance LDI technology, making it more efficient, cost-effective, and accessible to a broader spectrum of users.

The increasing awareness of water quality issues and the demand for sustainable solutions create fertile ground for the expansion of LDI technology across industries and regions.

Partnerships between government bodies, research institutions, and private enterprises can drive innovation and facilitate the implementation of LDI technology in diverse applications.

The emphasis on sustainability and eco-friendly practices presents an opportunity to position Liquiclear's LDI technology as a key player in the movement towards a greener and more water-secure future.

LDI Electronic Water Purifier and LDISF Electronic Water Softener: Evolving Landscape for a Sustainable and Water-Secure Future

As the nation progresses in its efforts to combat water scarcity and enhance water quality, Liquiclear's LDI technology in 2024 emerges as a ray of hope, signalling a promising and influential year for India's water purification industry.

Embracing innovation and harnessing technological advancements such as LDI Electronic Water Purification and LDISF Electronic Water Softening Solutions, India strides ahead towards a future where clean, secure, and readily available water becomes more than just a necessity but a tangible reality for all.

INDIA WATER EXPO 2023
Wed 20th–22nd December 2023
Venue: Chennai Trade Centre,
Ramapuram, Nandambakkam,
Tamil Nadu

International Conference on Water: From Pollution to Purification
7th– 10th December 2023
School of Environmental Sciences,
MG University, Athirampuzha, Kerala

Call for Proposals: Water Matters – Open Electives 2023
11th – 22nd December 2023
National Institute of Design (NID),
Ahmedabad, Gujarat
http://openelective.nid.edu/

SRW India Water Expo 2023 7TH EDITION
20th – 22th Dec 2023
Chennai Trade Centre,
Nandambakkam, Chennai, India

Smart Tech India
17th – 19th January 2024
Pragati Maidan, New Delhi, Delhi

India Water Show (IWS)
10th – 12th January 2024
Auto Cluster Exhibition Center, H–Block,
Chinchwad East, 181, Old Mumbai – Pune
Hwy, MIDC, Chinchwad, Pimpri–Chinchwad,
Maharashtra

Waptema Water Expo 2024
22th –24th January 2024
India International Convention and Expo
Center, Sector 25 Dwarka, Dwarka
New Delhi, Delhi

JAQUAR IPA NEERATHON 2024, DELHI
4th – 6th February 2024
Major Dhyan Chand National Stadium,
India Gate Cir, National Stadium, India Gate,
New Delhi, Delhi

IWF Water Transversality Global Awards And Conclave
2nd – 3rd February 2024
New Delhi, Delhi

WATER INTEC Feb. 2024
1st –29th February 2024
CODISSIA TRADE FAIR COMPLEX, G.V. Fair
Grounds, Avinashi Rd
Coimbatore, Tamil Nadu

Water Expo Pune 2024
8th –10th February 2024
Deccan College Ground, Deccan College Rd,
Ranjeet Nagar, Yerawada
Pune, Maharashtra

International Conference on Desalination and Renewable Energy
22nd – 23rd February 2024
New Delhi, Delhi

Water Today's Water Expo
28th February–1st March 2024
SRW INDIA WATER EXPO, New No.23, Old,
10, 3rd St, Postal Colony, West Mambalam
Chennai, Tamil Nadu

Water Expo – Kolkata
28th – 29th February 2024
G9VW+45X Science city, Kustia Rd, East
Topsia, Kustia
Kolkata, West Bengal, India

WAPTAG Water Expo 2024
29th February–2nd March 2024
Mahatma Mandir Convention and
Exhibition Centre Managed by
the Leela, Sector 13C, Sector 13,
Gandhinagar, Gujarat

BOOK YOUR COPY NOW!

MAGAZINE SUBSCRIPTION FORM

Fill out the form below and subscribe to our magazine!

Name & Designation:

Company Name:

Address: _____

_____ Pincode: _____

Mobile: | Email : | Website:

Magazine Subscriptions

	Subscribers	Term	Issues	Price	% Savings	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 Years	12	Rs. 4800	10%	Rs. 4320
☐	International	1 Years	12	USD 600	Nil	USD 600

BHIM
BHARAT INTERFACE FOR MONEY

Scan for Pay UPI QR Code

Merchant Name:
Shudhjal Foundation
Mobile: 70871 15455

TID: 67193992 I Gujarat, India
Approx. value: INR 84.54 Cr
Ahmedabad Municipal Corporation

Engineering procuring constructing commissioning EPC of sewage treatment plant of 30 MLD capacity including operation and maintenance for ten 10 years in t.p. 43 f.p. 221+222 at sola area in north west zone of AMC.

Tender Bid Submission Date: 30 Dec'23

TID: 67238674 I Gujarat, India
Approx. value: INR 84.54 Cr
Ahmedabad Municipal Corporation

Engineering procuring constructing commissioning EPC of sewage treatment plant STP of 30 MLD capacity including operation & maintenance for ten 10 years in t.p. 43a f.p. no 221+222 at sola area in north west zone of municipal corporation.

Tender Bid Submission Date: 29 Dec'23

TID: 67393406 I Jharkhand, India
Approx. value: INR 131.68 Cr
Water and Power Consultancy Services Indian Limited

Construction of centenary building including internal water supply sanitary installations and electrical works storm water drains roads paths cycle tracks ug sumps at ISM

Tender Bid Submission Date: 29 Dec'23

TID: 64532411 I Rajasthan, India
Approx. value: 1284.31 Cr
Public Health Engineering Department

Work of EMI at existing intake well at Chambal river raw water pipeline from intake to RWR 1 and RWR 2 at Dholpur main raw water pumping stations at RWR 1 an RWR 2 water treatment plant 135 MLD near RWR 02 5.0 MLD at Dholpur etc. pkg 1.

Tender Bid Submission Date: 15 Jan'24

TID: 67544289 I Tripura, India
Approx. value: INR 28.09 Cr
Urban Planning and Development

Treatment plants STP along with co treatment of used water and seepage with 5 years of operation and maintenance in three towns Dharmanagar Kailashahar & Kumarghat of Tripura.

Tender Bid Submission Date: 29 Dec'23

TID: 67270041 I Gujarat, India
Approx. value: INR 130.23 Cr
Gujarat Water Supply and Sewerage Board

design construction and operation & maintenance of water treatment plant at Nagadiya and dron how and providing supplying lowering laying and jointing various d.i. PVC rising main and gravity main pipelines WTP RCC ESR RCC sump pump house compound wall supplying and erecting pumping machinery.

Augmentation of Bediya Machhundri regional water supply scheme with trial run of three months and 10 years of comprehensive operation & maintenance of entire scope of work including existing & new components for supplying water to all beneficiary villages & town.

Tender Bid Submission Date: 06 Jan'24

TID: 67270062 I Gujarat, India
Approx. value: INR 82.68 Cr
Gujarat Water Supply and Sewerage Board

Work of MS di PVC raising main and gravity main pipeline water treatment plant RCC ESR sump pump house compound wall pumping machinery fitting work electro mechanical work including repair & maintenance of 10 years. Gujarati image

Tender Bid Submission Date: 06 Jan'2024

TID: 67578302 I Tripura, India
Approx. value: INR 25.96 Cr
Urban Planning and Development

Design build operate dbo of sewage treatment plants stp along with co treatment of used water and seepage with 5 years of operation and maintenance in three towns Khowai Ambassa & Teliamura of Tripura.

Tender Bid Submission Date: 05 Jan'24

TID: 64425988 I Gujarat, India
Approx. value: RS. 840.00 Cr
Ahmedabad Municipal Corporation

Design build and operation of new 375 MLD sewage treatment plant and upgradation of the allied infrastructure including three terminal sewage pump station s with operation and maintenance for 10 years at Vasna for the city of Ahmedabad Gujarat

Tender Bid Submission Date: 04 Jan'24

TID: 64425988 I Gujarat, India
Approx. value: RS. 840.00 Cr
Ahmedabad Municipal Corporation

Design build and operation of new 375 MLD sewage treatment plant and upgradation of the allied infrastructure including three terminal sewage pump station s with operation and maintenance for 10 years at Vasna for the city of Ahmedabad Gujarat

Tender Bid Submission Date: 04 Jan'24

TID: 67382573 I Bihar, India
Approx. value: INR 128.04 Cr
Bihar Urban Infrastructure Development Corporation Limited

Construction of storm water drainage system for various town area Bihar under Atmanirbhar Bihar Saat Nischay 2.

Tender Bid Submission Date: 09 Jan'24

TID: 67404143 I Bihar, India
Approx. value: INR 128.04 Cr
Bihar Urban Infrastructure Development Corporation Limited

Construction of storm water drainage system for various town area Bihar under Atmanirbhar Bihar saat nischay 2.

Tender Bid Submission Date: 08 Jan'24

Company	Page No.	Telephone	E–mail	Website
Aadys Components Pvt. Ltd.	1	+91 11 4155 1444	sales@aadys.co.in	www.aadys.co.in
Amikon Blowers & Systems Pvt. Ltd.	5	+91 11 41516313, +91 9311108295, +91 9311108296	amikonblowers@gmail.com, info@amikonblowers.com, sales@amikonblowers.com	
Duvera	55	+91 8595 149016, +91 8744 040406	sales@duverawater.com	www.duverawater.com
E–Procurement Technologies Ltd.	37	+91 93745 19764	sales@TenderTiger.com	www.TenderTiger.com
Indus Waterways	Back Cover Inside	+91 172 5275055, +91 11 4552 4715	induswaterways@gmail.com	–
Jai Maa Associates	21	+91 98111 88819, +91 11 2568 2346	jaimaaassociatesdelhi@gmail.com, jaimaa98gmail.com, info@jaimaaassociates.in	–
Liquiclear	7	+91 88009 42942	info@liquiclear.in	www.liquiclear.in
Optimus Enviropro Pvt. Ltd.	Front Cover Inside	+91 11 4155 1444	sales@optimusenviro.pro	www.optimusenviro.pro
Rysa Infratech Pvt. Ltd.	Back Cover	+91 11 4552 4715	info@rysainfratech.com	www.rysainfratech.com
Triveni Constructions	6	+91 98143 21749, +91 98141 32026, +91 172 4039 981	trivani_anand@yahoo.com, triveniconstructions.mohali@gmail.com	–
Vrise	37	+91 8826527527, +91 9871195751	vriseengineers@gmail.com	
WaterAge Banner	33	+91 99589 60470	enquiry@waterage.in	www.waterage.in
WaterAge E–magazine	4, 56	+91 99589 60470	enquiry@waterage.in	www.waterage.in
WaterAge Subscription	25	+91 99589 60470	enquiry@waterage.in	www.waterage.in

Thank You for Advertising with Us!

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

DROP-X®

DUVERA®
BUILDING TRUST

GRAFiL
Intelligent Flow

GRAFiL Industrial UF Membranes based on Our Magic Polymer POLYNORBIT

Ultrafiltration Module Specification	Module Diameter mm (Inch)	Module Length mm (Inch)
GRAFIL 4040	100 (4)	1146 (45)
GRAFIL 6040	175 (7)	1290 (51)
GRAFIL 8040	215 (8.5)	1300 (51)

Ultrafiltration Module Specification	Module Diameter mm (Inch)	Module Length mm (Inch)
GRAFIL 8060	215 (8.5)	1524 (60)
GRAFIL 10060	250 (10)	1670 (67)

- Can work under gravity
- No chemical enhanced backwash
- No HCl & No NaOH
- Prevent bio-fouling & algal development
- 3 years performance with ~ 50+ Industrial installations


Product par excellence


R & D for product improvement


Automated fiber manufacturing

THERMAX

STOCKIST THERMAX RESIN

SHAKTI® PUMPING LIFE
Authorised Dealer
High Pressure Pumps, Feed Pumps
Submersible Pumps, Transfer Pumps

APCP ACCORD POWER CONVERSION PVT LTD
Authorised Dealer
RO Panel, Ultra Filtration Plant Panel,
ETP Panel, STP Panel,

ALFA THE UV EXPERT
Authorised Dealer
Industrial UV Solution, Municipal UV
Solution, Commercial Water Solution

amikon BLOWERS & SYSTEMS PVT. LTD.
Authorised Dealer
Twin Lobe Root Blowers, Trilobe
Gas Blowers, Acoustic Enclosure,
Ring Blowers, Filter Press

ASSA AQUA ENTERPRISES
AQUASKY PLUS
Authorised Dealer
Hydro pneumatic tanks
10 bar, 16 bar, 25 bar

DIGITAL INSTRUMENTS CORPORATION
Authorised Dealer
TDS/ Conductvity, PH Meter,
ORP Meter

UPC
Authorised Dealer
Electromagnetic Flow Meter,
Turbine Flow Meter, Online Effluent
Water Quality Monitoring

PENTAIR · HYDRANAUTICS www.membranes.com · DUPONT · MILTON ROY · Danfoss · GUDDI PLASTCON PVT. LTD. · ION EXCHANGE

256/10, Church Road, Near Shiv Mandir, Jasola Vihar, New Delhi-110025
Email: Sales@duverawater.com | Call : 8744040406, 8595149016 | Website: www.duverawater.com

Subscribe
to our Magazine

WaterAge

To get all updates about the happenings in the Water World, you can now subscrib our monthly magazine "WaterAge" which finds its readership among thousands of leading industries, government bodies, consultants and contractors based worldwide.

Find us on:

SHUDH JAL FOUNDATION
JAL AAJ AUR KAL

805, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi – 110 066
M.: +91 99589 60470, E-mail: enquiry@waterage.in, Web.: www.waterage.in

Indus Waterways

Water & Wastewater Solutions

Indus Waterways providing consultancy for total water management and treatment solutions for Water and Wastewater Treatment, started business in 2009 and since then provided services to hundred of clients in Industries, Municipal and Hospitality sector

SERVICES TO PROVIDED BY CONSULTANT

- Detailed survey of proposed network of sewar line.
- Preparation of sewer network showing GL/IL.
- Location type design of manholes, intermediate sump well/lift well.
- Calculation of sewage generation.
- Type of treatment of sewage.
- Specification of mechanical and electrical equipment of sewage network STP & ETP.
- Preparation of drawing.
- Preparation of bill of quantities, detailed estimates BOQ and estimate based on MES SSR – 2020 and market analysis for Non-SSR items for sewage network STP & ETP.

FIELD OF EXPERTISE

H.O.: SCO 146-147, Sector-34A, Chandigarh-160022, T.: +91 172 5275055, 4012755
Corp. Office: 805, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi-110 066
Tel.: +91 11 41551444, 45524715, E-mail: induswaterways@gmail.com

ENGINEERING EXCELLENCE

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

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


SEWAGE TREATMENT PLANTS


LOW TENSION ELECTRIC WORK


WATER TREATMENT PLANTS


WATER DISTRIBUTION

COMPLETED PROJECTS

RYSA Infratech Pvt. Ltd.

Delhi Office: 805, 8th Floor, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi-110066,

Chandigarh Office:
SCO: 146-147, IIIrd Floor,
Sector-34A, Chandigarh-160022
E-mail: info@rysainfratech.com

Tel.: +91-11-4552 4715

www.rysainfratech.com