

4th CONFERENCE ON CLIMATE CHANGE & WATER CONNECT

TUESDAY,
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NEW DELHI

“Moving from Risks to Resilience for a Water Secure Future”

RETROSPECT



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Published by CII-Triveni Water Institute (CII-TWI), 2nd Floor, Andhra Association, 24-25 Lodi Institutional Area, Lodi Road, New Delhi -110003, India; T: +91-11-40028886; Email: shilpa.nischal@cii.in Web: www.cii-twi.in

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ABOUT THE CONFERENCE

The world is facing an imminent water crisis. The challenge is further getting exacerbated by climate variability and change. Water and climate change are inextricably linked. Rising temperatures are altering the water cycle with rainfall becoming more unpredictable, while droughts and floods become more severe and frequent.

The Intergovernmental Panel on Climate Change (IPCC) Assessment report 2021 emphasized how global warming is projected to intensify the global water cycle, “including its variability, global monsoon precipitation and the severity of wet and dry events”. The world is likely to experience more water-related disasters and more pressure on food and freshwater as the climate crisis worsens. This has far-reaching impacts, testing society’s ability to continue doing business-as-usual. Climate change not only has implications on the availability of freshwater—but can also stress infrastructure and systems used to treat, deliver and manage water resources.

The IPCC calls for an immediate and complete transformation of every sector of society. Emissions must peak by 2025 to achieve the 1.5° target as agreed in the Paris Agreement, and to reach the goal to halve greenhouse gas emissions by 2030 (UNFCCC 2015). Consequently, countries and companies are pledging to reach ‘net-zero greenhouse gas emissions’, in line with the 1.5° target.

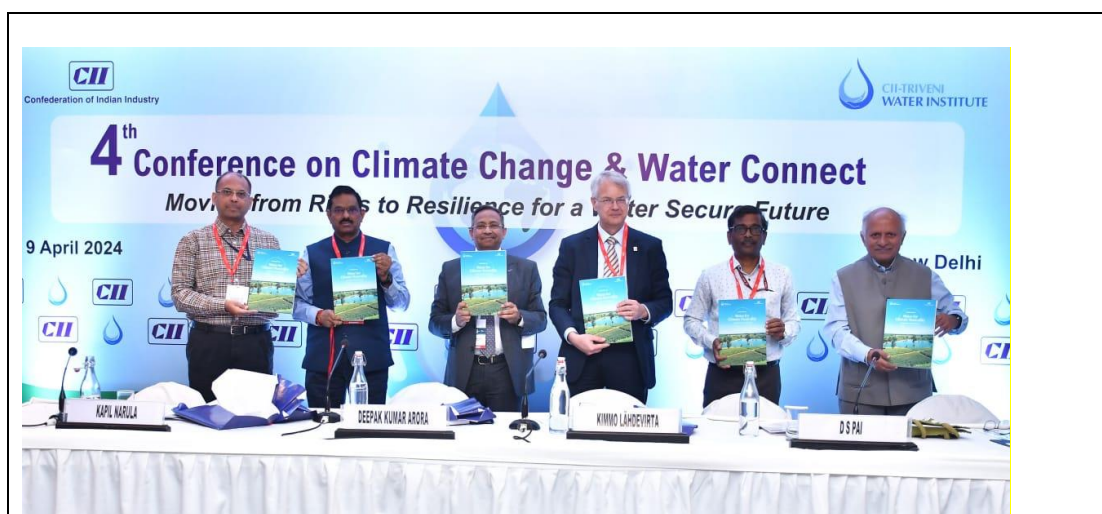
IPCC has identified numerous climate mitigation measures that can provide a pathway to achieve rapid transition to net-zero emissions. Many of these measures have a direct link to freshwater (SIWI 2023). One of the pathways for ensuring that climate action is long-term effective and successful for both humans and nature is to make it water-smart and inclusive.

Against this backdrop, the 4th Edition of conference on climate change and Water – with the theme **Moving from risk to resilience** aimed at creating awareness towards driving transformation from a water crisis to a water-secure future by making climate-resilient progress on water security.

The conference deliberated strategies prioritizing water resources management in ways that contribute to combating climate change and achieving carbon neutrality and show cased various initiatives that demonstrated the fundamental role of water management in the broader strategy towards climate neutrality.

About 200 delegates from industry, government, NGOs, RWAs, Academia, technology providers were present at the conference.

Inaugural Session



Release of compendium - "Water for Climate Neutrality – A Compendium on Good Practices from India Inc" (L-R) Dr Kapil K Narula, CEO & Executive Director, CII Water Institute, Mr Avinash Mishra, Former Adviser, NITI Aayog, Mr Deepak Kumar Arora, Conference Chairman and President Nayara Energy Private Ltd, H.E. Mr. Kimmo Lähdevirta, Ambassador of Finland to India, Dr D S Pai, Head - Environment Monitoring and Research Center (EMRC), India Meteorological Department, Government of India, Mr Ravi Singh, Member, Advisory Board, CII Water Institute & Secretary General and CEO, WWF

H.E. Mr. Kimmo Lähdevirta, Ambassador of Finland to India emphasized the need for a holistic approach to water management, urging companies to take more responsibility by reducing freshwater abstraction, wastewater treatment, and prioritizing wastewater reuse. He called for deploying advanced technologies, such as real-time sensors for monitoring rain, surface water, and groundwater levels, especially in water-stressed areas

He mentioned that Finland by adhering to efficient integrated water management strategies, holistic governance, smart technology, and engagement with varied stakeholder has ensured safeguarding clean water for its citizens.

Shifting his focus to India, where only 30% of wastewater is currently recycled, he emphasized on treatment of wastewater and considering wastewater as a source of water. The use of treated wastewater to recharge aquifers during low-demand periods can ensure water availability during high-demand times and droughts, while cleaning water bodies enhances groundwater recharge and local livelihoods, he added. He also advocated for smart water management through smart metering and digitalization to improve water use efficiency, particularly by addressing non-revenue water issues

Mr. Ravi Singh, Member of the Advisory Board at CII Water Institute and Secretary General and CEO of WWF, underlined that resilience aspect of climate change directly relates to water. He emphasized efforts to revive river tributaries by mapping them, examining irrigation methods, and collaborating with communities to restore water streams. He highlighted that these initiatives not only support the supply water to community for their

needs but also ensure it returns to main rivers, avoiding over-extraction and groundwater depletion.

Mr Singh advocated for a basin-wise approach to water management, determining where water extraction is permissible and where it should be restrained to support ecological balance. He stressed the importance of aquifer management, suggesting a 20-year vision for recharging well-mapped aquifers to ensure long-term water security.

Mr Singh also drew attention to the significance of wetlands, which provide crucial carbon absorption and livelihoods but are threatened by urbanization. He recounted the rapid disappearance of wetlands in cities like Mumbai and Bangalore due to construction activities. This loss mirrors a nationwide issue requiring immediate rehabilitation efforts.

As a way forward, Mr Singh called for nature-based solutions, linking health issues to climate change and the disruption of ecological systems. He urged the audience to get aware on these issues to better influence policy and contribute to sustainable development for India's future water challenges.

Dr D S Pai, Head - Environment Monitoring and Research Center (EMRC), India Meteorological Department, Government of India, emphasized on the role of early warning services in minimizing hydro-meteorological hazards and underlined the need for developing a seamless forecasting system covering all the aspects of weather forecasting and timely dissemination of information to the end users.

Dr Pai, informed that IMD aims to create a three-dimensional picture of the climate system with a comprehensive observation network covering 85% of India, including radars, automatic weather stations, satellite data, and upper air observatories. Globally, integrated data and a seamless forecasting system allow IMD to provide predictions across different timescales, from nowcasts for immediate weather events to seasonal and decadal forecasts.

The challenge lies in tailoring this information for sectors like agriculture and ensuring rapid dissemination to end-users. Dr Pai, stated that continued technological advancements in modeling and observation networks will further improve these early warning systems, enhancing resilience against hydro-meteorological hazards.

Mr Deepak Kumar Arora, Conference Chairman and President Nayara Energy Private Ltd, emphasized that the climate change is a rising threat and inextricably linked with water. He further stressed the need for an effective country-driven climate change adaptation approach. The activities should reflect the importance of water management for reducing vulnerability and building climate resilience.

He mentioned the role of CII's core group on Climate Change and Water formulated under the aegis of CII National Committee on Water. The core group focusses on sensitizing and creating awareness on sustainable water management practices in view of rising climate variability. It also aims at exploring water-related climate change strategies/actions plans.

Dr Kapil K Narula, CEO & Executive Director, CII Water Institute, shared that water offers a lot of hope and solutions to combat the impact of climate change and highlighted that technology will play a crucial role in managing the elements. He also stressed on the need for minimizing the impact on the ecosystem and components of ecosystem that lie at the centre of climate change and water.

A compendium on **Water for Climate Neutrality – Good Practices by India Inc** was also released during the conference. The compendium showcases exemplary initiatives undertaken by the Indian Industry to respond to the emerging water challenges emanating from rising climate variability.

Session1: Climate Risks and Water



(L-R) Ms Shilpa Nischal, Principal Counsellor, CII Water Institute, Mr Suresh Babu, Director - Rivers Wetlands and Water Policy, WWF, Mr Harish Kumar Varma, Executive Director, International Commission on Irrigation & Drainage, Mr Avinash Mishra, Former Adviser – Water & Land Resources, NITI Aayog, Government of India, Mr Sundeep, Scientist F, Ministry of Environment, Forest and Climate Change, Dr Victor R. Shinde, Lead-Water and Environment, National Institute of Urban Affairs (NIUA), Mr Vinay Chataraju, Co-founder, Kritisnam Technologies

1. Focus / Objective

To deliberate climate change impact on hydrological cycle and different sectors and explore various actions that could be adopted to ensure water security and sustainability.

1.1. Moderator

Mr Avinash Mishra, Former Adviser – Water & Land Resources
NITI Aayog, Government of India

1.2. Speakers

- **Mr Harish Kumar Varma**, Executive Director, International Commission on Irrigation & Drainage

- **Ms Shilpa Nischal**, Principal Counsellor, CII Water Institute
- **Mr Sundeep**, Scientist F, Ministry of Environment, Forest and Climate Change
- **Mr Suresh Babu**, Director - Rivers Wetlands and Water Policy, WWF
- **Dr Victor R. Shinde**, Lead-Water and Environment, National Institute of Urban Affairs (NIUA)
- **Mr Vinay Chataraju**, Co-founder, Kritsnam Technologies

Discussions

Moderating the session, Mr. Avinash Mishra, Former Adviser – Water & Land Resources at NITI Aayog, Government of India, underlined that the rise in global temperature by 1.4°C from pre-industrial time has caused severe climate changes. He further highlighted that the rainfall in India has declined by 1.00 cm over the period of 1975-2020, leading to around 25-30 billion cubic meters of lost water, which would have been sufficient to support 600 million people. Mr. Mishra emphasized that climate change induced extreme weather events, also have significant implications for growth. He stressed on creating more storage structures, optimize water use efficiency and manage aquifers to combat climate change impact.

Mr Harish Kumar Verma Executive Director – International Commission on Irrigation & Drainage, pointed out that extreme weather events are becoming more frequent. The rainfall patterns have altered with intense, short-duration rainfall that causes soil erosion and runoff coupled with longer periods of no rainfall in between. These changes pose serious challenges for agriculture, affecting both rainfed crops, which account for 60% of agricultural land, and water availability for irrigated areas.

To address water availability for food security, Mr. Verma proposed expanding area under irrigation and proper maintenance of existing irrigation and storage infrastructure, creating water storage solutions by developing small and medium water storages to augment water resources and facilitate groundwater recharge; Enhancing water use efficiency across various sectors, including agriculture through adoption of technologies such as micro-irrigation systems (drip and sprinkler systems) and utilizing available soil moisture to minimize irrigation needs.

Mr. Verma also advocated for the use of non-conventional water sources, such as recycling and reusing treated water, in agriculture and other sectors, including groundwater recharge. He cited Saudi Arabia's example, where almost 90% of non-conventional water is used in agriculture, with some even used for drinking after tertiary treatment. He also highlighted the success of projects looking at increasing water use efficiency in agriculture, like the Asian Development Bank's initiative in Chhattisgarh. This project utilized soil moisture to boost kharif cropping intensity from nil to 53% and rabi cropping intensity from 90% to 100%. Mr. Verma also stressed the importance of learning from successful water management practices in other countries. He noted that China, for instance, has achieved higher food production with less water compared to India, with yields three to four times greater.

Ms. Shilpa Nischal, Principal Counsellor, CII Water Institute, discussed the Water Neutrality Framework Guidelines developed by NITI Aayog and CII. She emphasized that achieving water neutrality is a gradual process, and these guidelines provide a systematic, scientific roadmap for addressing vulnerabilities and embarking on the water neutrality journey. Elaborating on the threefold principles of the guidelines- First, within the fence,

improving operational water use efficiency within the plant. It involves plugging gaps in suboptimal water usage through various tools and techniques, such as measuring, monitoring, conducting water audits, and addressing any leakages. Second component beyond the fence emphasizes understanding the health of the ecosystem and watershed. It involves mapping the watershed to identify emerging water risks and address them effectively. Third component involves understanding the health of the watershed of supply chain. Supply chain is an integral part of company's production, and material sourced from a stressed watershed may pose a future challenge and risks in the supply of that raw material.

Ms. Nischal also highlighted that the neutrality guidelines support decarbonization. Many strategies adopted in the process of becoming water-neutral can help improve a company's carbon footprint. Additionally, achieving water neutrality enables companies to earn water-based green credits, benefiting the water sector amid climate change.

Mr. Suresh Babu, Director of Rivers, Wetland, and Water Policy at WWF emphasized the critical role of wetlands in building climate change resilience and ensuring water availability. He highlighted that wetlands are integral to the hydrological cycle, supporting flood management, carbon sequestration, groundwater recharge, and ecosystem health. The increased focus on wetlands over the past few years and the incorporation of cultural and heritage aspects, referring to wetlands as "Amrit Dharohar," is a noteworthy development, he shared.

Regarding wetland conservation, Mr. Babu pointed out that data analysis of water recharge and precipitation indicates that areas with lakes have maintained stable groundwater levels. He stressed the need to integrate land use decisions with urban and industrial planning to recognize the value of wetlands. According to the Wetlands (Conservation and Management) Rules, 2017, wetlands with defined drainage need to be delineated as zones of influence. Therefore, identifying, prioritizing, and notifying these wetlands and their catchments is crucial.

Mr. Babu shared that, according to the Indian wetlands atlas, there are about 2.25 lakh wetlands covering 2.25 million hectares in the country. To raise awareness about wetland conservation, the government launched the "Save Wetlands Campaign" in February 2023 as part of Mission Sahbhagita. This campaign involves local communities in the integrated management and monitoring of wetlands, engaging community-based organizations to help save degrading wetlands. The campaign has conducted ground-truthing of 50,000 wetlands.

Mr. Babu also emphasized the significant impact of carbon sequestration in wetlands, noting that its benefits surpass those of forests. Wetlands help cities and localities better adapt to climate change by providing flood cushioning and microclimatic regulation, such as mitigating heat stress. However, restoring wetlands is a long-term process that requires recovery time, stakeholder involvement, and patience, particularly because many wetlands are polluted with sewage and emit greenhouse gases.

Mr Sundeep Scientist F – Ministry of Environment, Forest and Climate change shared the government's efforts to minimize the impact of climate change on water resources. He highlighted that a cross-sectoral, multi-ministerial approach is being implemented, with many ministries incorporating climate change considerations into their policies and modifying them to encourage industry through incentives and regulatory provisions.

Mr. Sundeeep informed that over the years, the policy framework has evolved from the Water Act of 1974 to the Environmental Protection Act of 1986 and the CGWA notification of 2021. Benchmarks have been developed for water-intensive sectors, and water audits play a crucial role in managing water in both industries and the service sector, which also has significant potential for recycling water back into the industrial ecosystem.

He emphasized the need to develop a mechanism similar to the criteria used for groundwater categorization for assessing the health status of catchments and watersheds. This would enable evidence-based decisions for sustainability based on which guidelines could be provided to stakeholders in the catchment area to create a sustainable ecosystem. He urged the Confederation of Indian Industry (CII) to adopt an integrated approach to this effort.

Dr Victor R. Shinde Lead- Water and Environment; National Institute of Urban Affairs (NIUA) outlining key priorities for addressing the issues of water scarcity in cities in India stressed that industry is an important stakeholder and needs to play a very strong role in meeting these priorities. Firstly, the move towards searching new sources of water may not be the best option in future, rather the need is to move towards management of water and use of treated or recycled water. He opined that around 80% of the water that enters household goes out and this used water is a more stable source of water unlike rainwater which is available only for 3-4 months. Investing in mechanisms to utilize treated wastewater can provide a consistent water supply.

Second, need to shift back to utilizing shallow aquifers as part of the mainstream water management strategies over the next 5 to 10 years. Traditionally, India has always relied on shallow aquifers which have been a stable source of water throughout the year. However, cities are digging deeper and deeper in search of water. Deep aquifers take years to recharge, sometimes even thousands of years to recharge and may not be a sustainable model whereas as shallow aquifers can be recharged easily and, in less time, around 2-3 days. The quality is much better, the treatment costs go down with shallow aquifers NIUA is piloting with 10 cities to see the different ways in which shallow aquifers can be managed.

Third, engagement of community is crucial to enable policy implementation. Effective water management requires active participation of the community along with the government. Stressing on importance of co-governance of water resources, with collaboration of both government and the community, he referenced successful examples from cities like Melbourne, Singapore, and Los Angeles, where extensive public sensitization and awareness programs have played a crucial role in managing water resources. Going forward the level of engagement with communities will need to increase only then can we move from water scarcity to water security.

Mr Vinay Chataraju; Co-founder – Kritsnam Technologies, highlighted the crucial role of technology in water management. He noted that while India has made significant strides on the supply side, there is a noticeable lag in technology adoption on the demand side. Many utilities, corporations, and irrigation departments recognize the need for technology on-site, but there is still a significant gap in data availability for water demand management.

Mr Chataraju emphasized that limited technology adoption in managing water demand leads to insufficient data for informed decision-making. Unlike other sectors that have rapidly embraced new technological advancements, the water sector has been slow to adopt these

innovations. He pointed out that smart technologies and real-time data monitoring are essential for understanding the status and health of water sources. By integrating technology into the water sector, timely decisions can be made to prevent crises.

Mr Chataraju concluded by stating that increased awareness, appropriate policies, and a collaborative approach among regulatory bodies, stakeholders, and users will enhance the adoption of these technologies, ultimately benefiting water management practices.

KEY MESSAGES

The following strategies involving multifaceted approach can collectively contribute to water conservation, environmental sustainability, and resilience against climate change.

- **Non-Conventional Water Use and Recycling**

The adoption of non-conventional water sources, such as treated wastewater, can significantly enhance water availability for agriculture and other sectors. It not only helps in conserving freshwater resources but also reduces the discharge of pollutants into natural water bodies. Investing in advanced treatment technologies and infrastructure to ensure the treated water meets the quality standards for agricultural and other non-potable uses is crucial.

- **Utilizing Shallow Aquifers**

Shallow aquifers can be recharged much more quickly than deep aquifers, making them a viable option for improving groundwater levels and sustainability. Integrating shallow aquifers into mainstream water management strategies over the next 5 to 10 years.

- **Improving Water Use Efficiency in Irrigation**

Adopting advanced irrigation technologies such as drip irrigation, sprinkler systems, soil moisture sensors can significantly improve water use efficiency. These technologies ensure that water is used precisely where and when it is needed, reducing wastage. Promoting practices maintaining soil moisture, thereby minimizing the need for frequent irrigation.

- **Assessing Health Status of Catchments and Watersheds**

Developing a mechanism similar to groundwater categorization for assessing catchments and watersheds can provide valuable insights into their health and sustainability. This approach would enable evidence-based decision-making for conservation and sustainable management of water resources.

- **Wetland Conservation**

Identifying, prioritizing, and notifying wetlands and their catchments

Integrating land use decisions with urban and industrial planning is essential to recognize the value of wetlands. Implementing comprehensive wetland management plans and involving local communities in restoration efforts.

- **Technology Adoption in Water Demand Management**

Implementing IoT devices, sensors, and data analytics can provide real-time monitoring of water resources. These technologies can help users understand water usage patterns, detect leaks, and promote conservation, leading to behavioural changes in water consumption.

- **Community Engagement**

Effective water management policies require active community participation. Co-governance of water resources, where both government and community are involved, ensures better implementation and compliance. Success stories on water management from cities like Melbourne, Singapore, and Los Angeles have shown that extensive sensitization and awareness campaigns can lead to more responsible water usage. City administrations should prioritize citizen engagement and education on water management.

- **Adopting water-neutral practices- Reducing and offsetting the impacts**

Encouraging industries to adopt water-neutral practices not only benefits the water sector but also contributes to broader climate change mitigation goals. The Water Neutrality Guidelines of Niti Aayog promote a comprehensive assessment of water usage, considering operational efficiencies, ecosystem health, and supply chain impacts. This holistic approach ensures sustainable water use and management. By adopting these guidelines, companies can achieve water neutrality, contributing to water conservation and earning water-based green credits, which align with broader decarbonization efforts

Session 2: Water for Climate Neutrality – Good Practices, building resilience and ecosystem restoration



(L-R) **Ms Shilpa Nischal**, Principal Counsellor, CII Water Institute, **Mr L Prabhakar**, Executive Vice President and Head - Social Investments ITC Limited, **Mr Navdeep Singh Mehram**, Vice President- CSR & Sustainability, DIAGEO India, **Mr Deepak Kumar Arora**, Conference Chairman and President Nayara Energy Private Ltd, **Mr Rajesh Ayapilla**, Director, CSR & Sustainability, Coca-Cola India, **Mr Vishal C Sathe**, Ion Exchange (India) Limited

Moderator

- **Mr Deepak Kumar Arora**, Conference Chairman and President , Nayara Energy Private Ltd

Speakers

- **Mr L Prabhakar**, Executive Vice President and Head - Social Investments , ITC Limited
- **Mr Navdeep Singh Mehram**, Vice President- CSR & Sustainability, DIAGEO India
- **Mr Vishal C Sathe**, Ion Exchange (India) Limited
- **Mr Rajesh Ayapilla**, Director, CSR & Sustainability, Coca-Cola India

Focus:

The session showcased various initiatives by various corporates that demonstrated the fundamental role of water management in the broader strategy towards climate neutrality.

Discussion

- **Mr Navdeep Singh Mehram, Vice President- CSR & Sustainability, DIAGEO** India speaking about the various catchment level interventions at their Alwar plant site, shared that science-based approach for source sustainability, supply driven intervention, and demand management has impacted the lives and livelihoods of communities. In Alwar, creation of 5 check dams not only raised the water table of the region but the farmers were able to grow 5 times more onions than before. The interventions also resulted in various co-benefits to the ecosystem, he informed.

Sharing about DIAGEO's Society 2030 – Grain to Glass commitment to use 40 percent less water in production by 2030 emphasised the commitment of top management is instrumental in driving the agenda of sustainable water management. At DIAGEO, a year-on-year water reduction strategy has been clearly laid and these KPIs of sustainability are part of CEOs score card, he shared.

- **Mr. Rajesh Ayapilla, Director of CSR and Sustainability, Coca-Cola India**, sharing Coca cola's commitment to water stewardship and its local implementation through various projects spoke about Project Jaldhara, which addressed the environmental challenges faced by people in Kolar and Anantapur districts of Karnataka and Andhra Pradesh respectively. These regions, heavily reliant on rainwater and borewells, faced declining groundwater levels due to overexploitation.

Mr Ayapilla informed that under project Jaldhara groundwater and surface water resources replenished in districts Kolar and Anantapur has benefitted rural communities and farmers. In Kolar, the project involved desilting and rejuvenating traditional water tanks to enhance water storage and groundwater recharge. Desilting water tanks resulted in a 90% increase in bore water levels, with previously dry borewells now rejuvenated. Water availability for farmers increased significantly, with 45% of farmers having year-round water access compared to just 22% before the interventions.

In Anantapur, with construction of five check dams the average area under irrigation has increased by 35%, and groundwater levels rose by 25%. Since 2021, Project Jaladhar has created a replenished potential of approximately 685,000 cubic meters of water. Project Jaldhara also addressed various development aspects, including upskilling individuals, promoting women's empowerment, and conducting health care awareness drives. The project positively impacted over 10,000 people across 1,500 households, increasing employment opportunities and reducing migration to cities, informed Mr Ayapilla

- **Mr L Prabhakar, Executive Vice President and Head - Social Investments, ITC Limited** stated that ITC's approach to water management is driven by a larger purpose of transforming lives and landscapes, not just on water but on the broader impact that can be created. Speaking about ITC's Watershed Development programme, Mr Prabhakar informed that project has been implemented in 50 districts across 16 states. Sharing examples of ITC's work in supply augmentation through rainwater harvesting through traditional structures, informed that 30,000 traditional water harvesting structures have been completed, with 2,900 built in 2023-24.. On groundwater recharge, Mr. Prabhakar, emphasized on the need to consider both

shallow and deep aquifers. He cited examples from Bangalore, where their work in groundwater recharge has reduced stress levels in the catchment area.

Mr. Prabhakar, emphasized that demand management can help in achieving greater scale and requires much less financial capital compared to supply augmentation. He also underscored the importance of partnerships with other corporations, knowledge partners, and the government. Examples were provided of ITC's work with government and grassroots institutions to achieve their goals.

Mr. Prabhakar shared that that ITC's focus has expanded from immediate catchment areas to entire river basins in recent years. In the Ghod River Basin, extensive mapping and collaboration with local bodies helped identify and address water shortfalls. Their interventions have created potential water supplies of almost 90 million cubic meters. Technological tools like satellite imagery revealed a 19% improvement in water-bearing capacity, highlighting the downstream benefits of their efforts.

Mr. Prabhakar emphasized the importance of both urban and rural grey water management. Success stories on Urban Water Management from Bangalore and Thiruvathir were shared. In Bangalore, ITC worked on rainwater harvesting and ecosystem approaches to promote roof water harvesting among households, creating an ecosystem of trained plumbers to implement these systems effectively. In Thiruvathir, they addressed flooding issues by restoring traditional wetlands and managing waste and sewage in collaboration with local authorities and the community.

- **Mr. Vishal C Sathe**, representing Ion Exchange (India) Limited, emphasized the critical role of water in all industries and stressed on the need for adoption of suitable technologies to Leverage advanced technologies for treatment of wastewater-cum-resource recovery. He advocated for a comprehensive approach to water sustainability, outlining a four-pronged strategy: rainwater harvesting, reuse of treated sewage water, desalination of seawater for coastal installations, and recycling industrial effluent.

He referred case studies with successful implementations of these strategies to address industry-specific water challenges. First, Establishment of a state-of-the-art 30 MLD sewage treatment plant executed under a public-private partnership, to address water scarcity and high costs a large textile manufacturing plant in Anjar. This initiative not only addressed environmental concerns of untreated sewage discharge but also provided a sustainable water source for industrial processes. The investment payback period was less than two years, demonstrating the viability of such initiatives for both social and industrial benefits.

Second, establishment of an advanced sewage treatment system with prefabricated sewage treatment plant in a government township in Mumbai, which was facing water availability and space constraints. The system eliminated the need for blowers, significantly reducing power consumption. This system allowed for low operating costs, extended sludge storage, and the reuse of treated water for gardening and flushing.

Third, a NGO in Hyderabad utilized an advanced biomethanation system to convert food waste into renewable energy and purify water. This resulted in the generation of renewable energy, the production of organic manure, and the purification of water from the waste.

Another example showcased adoption of seawater desalination by a Chennai refinery's to mitigate high dependency on municipal water and escalating costs.

Lastly, a synthetic rubber manufacturing facility in Panipat implemented a zero liquid discharge solution, achieving over 90% water reuse and compliance with environmental regulations. These cases underscored the effectiveness of holistic water management approaches in addressing industry-specific water challenges.

Key Messages

- **Science-Based Approach for Source Sustainability:**

Implementing science-based strategies for source sustainability, supply intervention, and demand management positively impacts communities' lives and livelihoods.

- **Prioritize Demand Side Management:**

Emphasize demand side management for more effective outcomes in water management initiatives.

- **Utilize Advanced Technologies:**

Leveraging advanced technologies for wastewater treatment and resource recovery enhances efficiency and sustainability.

- **Partnership is Key:**

Collaborative partnerships are essential for scaling up initiatives and ensuring sustained social impact. Active involvement of communities is crucial in co-creating implementation infrastructure.

- **Community Engagement for Sustainability:**

Involving communities in all project phases fosters a sense of responsibility, ownership, and ensures project sustainability.

- **Corporate commitment crucial to drive Sustainable Agenda:**

The mindset of top management influences sustainable water management agendas. Handholding industrial units in stressed watersheds and considering factors beyond RoI are crucial for water scenario revival.

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“Moving from Risks to Resilience for a Water Secure Future”

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