



Express Water

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Project Tracker
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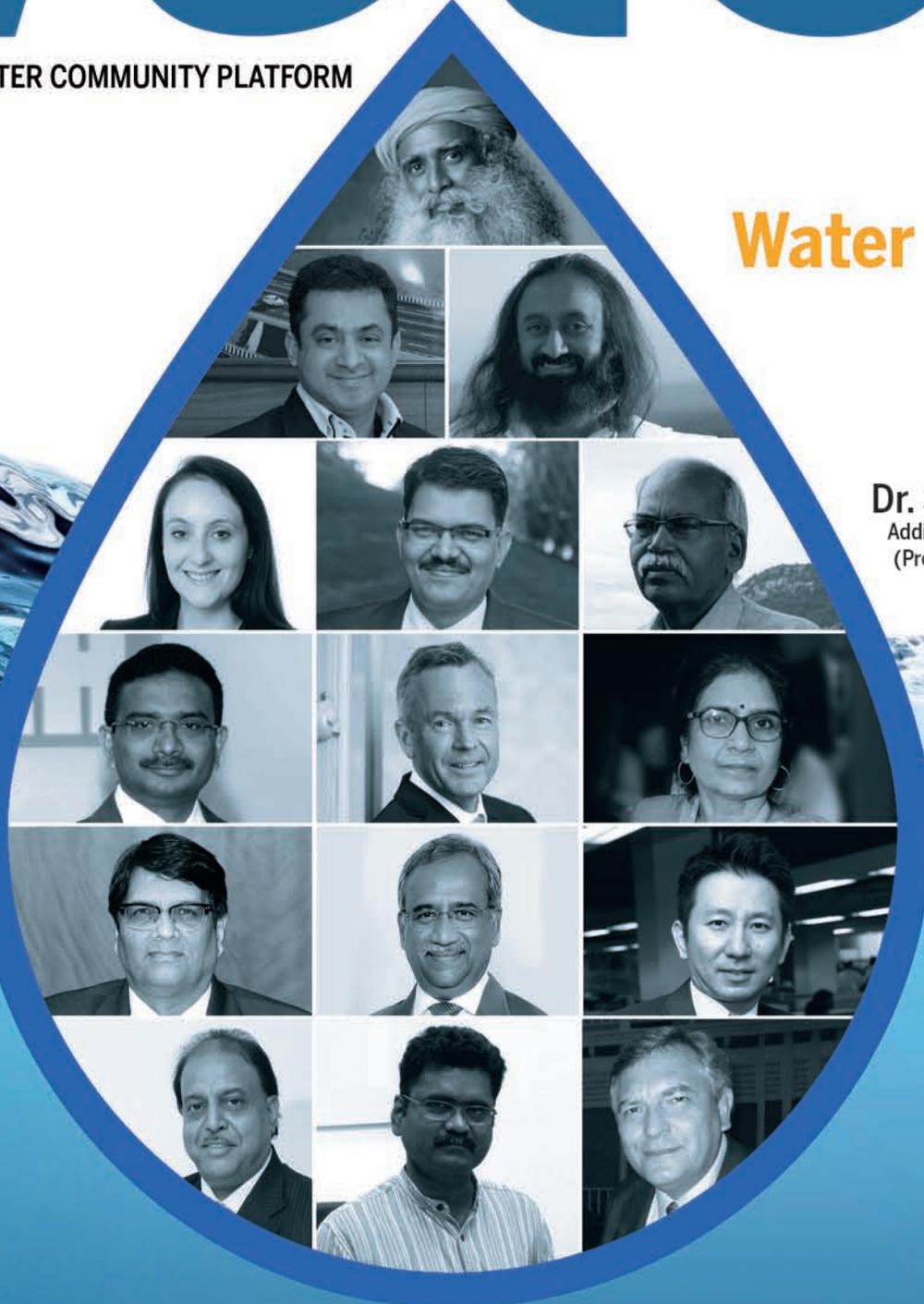
Water Dialogue



Interview:

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Founder, Isha Foundation

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Additional Municipal Commissioner
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WATER LEADERS

Leaders from water community share their thoughts on the challenges water sector is facing and chalk out their roadmap for all the stakeholders.

Indian Water Sector - On the Crossroads



By
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Water scarcity in India is a manmade problem. Mismanagement of water resources caused the current crisis resulting in millions of Indians having no access to clean drinking water.



240 MLD STP, Ahmedabad

INDIA IS COMPETING with large developed economies in the world and its economic growth is expected to hovering around 7-8 per cent in next few years. Despite being one of the major economies in the world having about 18 per cent of global population, it only contains 4% of the world's fresh water resources, which are also declining in terms of supply and quality. Drinking water was once considered safe in India, but today providing nearly 1.35 billion inhabitants with access to safe drinking water is a difficult challenge. The alarming rate of depleting groundwater sources and rapidly polluting surface water requires immediate and focused attention by all stake holders.

Scarce Resource

India is facing the challenge of rapidly growing water demand, driven by ever increasing population, firm economic growth, faster trends of urbanization and increased industrialization activities. The water scarcity problem is not only a result of quantitative or qualitative shortage but also a consequence of inefficient use and poor water management. The 2030 Water Resources Group has calculated that India's water demand will outstrip supply by 50 per cent by the year 2030. A significant challenge faced by India; therefore to increase

conservation of water across operations and geographies.

India's major dependence on groundwater has resulted in over-extraction which is lowering the water table and adversely impacting drinking water supply. India is the world's largest user of groundwater that extracts more than any other country in the world and accounts for nearly 25 per cent of the world's extracted groundwater. Since 1980s, its groundwater levels have been dropping considerably. World Resources Institute has ranked India at 41 in global water stress rankings of 181 countries and among the second high-risk nations. The water stress is extremely high in the north-western region where levels have plunged from 8 meters below ground to 16 meters. Parts of northern region including Delhi face serious water shortages every summer. A decade-long study of wells in Maharashtra shows that 70 per cent of them have declining groundwater levels. Much of the water extracted from the underground sources is non-renewable as the recharge rates are much lesser than the extraction rates.

Central Water Commission said that India's major dams were at just 27% of their capacity and 91 reservoirs were 30% below last year's levels. Groundwater and surface water is under high risk

from both agricultural and urban uses. Declining rates of natural replenishment are threatening the sustainability of aquifers in the Indo-Gangetic basin, which constitute one of Asia's most densely populated and agriculturally productive regions.

Contamination Issues

India's groundwater sources are not only overexploited but also contaminated. The deep-level groundwater is contaminated by sewage, fluoride, arsenic, and uranium. Incidence of arsenic contamination has doubled between 2013 and 2016, as measured by number of affected habitations.

Water Aid, an international organization working for water sanitation and hygiene finds that an alarming 80 per cent of India's surface water is polluted. Central Pollution Control Board estimates that 75-80 per cent of water pollution

by volume is from domestic sewerage, while untreated sewage flowing into water bodies including rivers have almost doubled in recent years. India has just about 270 sewage treatment plants and most of them are performing under their capacity due to poor infrastructure support and lack of funds with local utility bodies. It is estimated that due to lack of sewage treatment facilities, more than 62 per cent of total sewage is discharged directly into our rivers and other water bodies and further polluting the already limited water resources.

The World Health Organization finds that about 1.6 million people die every year from water borne diseases due to lack of safe drinking water and basic sanitation. 90 per cent of them are children under the age of 5, mostly in developing countries including India. Safe drinking water is a basic requirement and millions of people in India have no access to any source of drinking water.

Water and Smart Cities

In India, the smart and future cities will face major challenges as far as water demand supply management is concerned. The challenges will revolve around water supply, wastewater management and drainage services in the city.

With the growing importance of cities in the Indian economy, water crisis has the potential to impact not only public health but also country's economic development. This threat will multiply with the growth of water-intensive industries and high levels of industrial pollution affecting water bodies and aquifers. With rapid population growth, United Nations estimates that India will become the world's most populous country by 2024. With a number of planned smart and future cities; increased demands for food and energy and consistent poor management of water resources, the water stress will be worsening in urban regions where groundwater is already overdrawn.

Key to meeting these challenges requires planned efforts in many ways in which water use, future needs and sustainability with treatment and reuse could be addressed. To ensure optimal water supply and demand management in future cities where freshwater sources may be insufficient to keep pace with population growth, prudent will be to use water more efficiently and cut overall demand. Above and below the ground infrastructure needs careful assessment and revamp in line with the growing demand. Future planning



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will depend upon efficiently handling of entire water cycle using modern technologies and best practices. At the same time, it will be essential that necessary technologies, capabilities, processes and practices are made available on the required timescale.

Water Technologies

The global innovation in water technologies will help in countering water scarcity issues and support utilities with sustainable water management services. The inventive technology has made significant breakthroughs in water supply and distribution, drip irrigation, desalination, waste water treatment, automation, asset management, metering and other aspects of water management. Innovations such as affordable desalination plants are need of the time in water stressed states of Maharashtra, Tamil Nadu and Rajasthan which are investing in such projects for creating drinking water through desalination plants.

Technologies for treating water have also advanced significantly over the past few years as researchers have increasingly focused their efforts on water treatment technologies. Today the availability of clean, safe drinking water is on demand at every location in the world. However, even this highly treated water is subject to degradations in quality once it leaves the treatment plant and enters the distribution system. The new innovations in water treatment technology have enabled us to develop new cities and habitants along with our businesses. Water purification system using nanotechnology offers opportunities to develop next generation water supply systems with advanced level of treatment to improve efficiency as well as to augment water supply

through safe use of water sources.

SPML Infra, based on its experience of more than 3 decades in water management in India, has developed an Integrated Management Information System (IMIS), a software solution for smart management of water utilities. It is highly scalable and capable of handling the Metering, Billing, CRM, Network Analysis, Demand Forecasting & Management, Asset and Inventory Management, Business Intelligence, and Operation & Maintenance of the entire water supply and distribution network. After implementing this system, the water loss has been considerably reduced and revenue increased significantly with better consumer services in Delhi and Karnataka.

Smart Water Grid

Smart water grid integrates Information and Communication Technology (ICT) into a single water management scheme. This is a promising solution for resolving critical water problems to ensure the security of water quantity, quality with the help of ICT-based water management solutions. In Singapore, the implementation of a Smart Water Grid system supports the mission to supply 24x7 good water supplies to its people. With sensors and analytic tools deployed to provide a real-time monitoring and decision support system, the Smart Water Grid system enables utility to manage the water supply network efficiently, ensuring that all residents will continue to enjoy a reliable and sustainable water supply for generations to come. The Smart Water Grid system covers the key operational aspects of a water distribution system like asset management, leak and non-revenue water management, water quality monitoring, automated meter reading

and water conservation. For going forward in India, we need to consider the implementation of smart water grids in our cities, especially in the planned smart cities to help service provider with real time monitoring of assets and water quality to enhance planning and network operations; it also enables consumers to make informed choices towards water conservation. In addition, the usage data from automated meter readings will enable more accurate demand prediction for optimizing pumping schedules, water turn-over in service reservoirs, and water required to be treated and pumped. The further research and testing are being done to realize the full benefits of a Smart Water Grid.

Water Governance

Improving governance in water segment remains a matter of concern since arrangements are generally fragmented which needs a radical transformation to be able to address new challenges. In India, water is being a state subject; water supplies, irrigation and canals, drainage and embankments and storage falls in the state list. There is a need to recognize water as a finite and vulnerable resource. The government should take urgent action to set the stage for enactment of a comprehensive national legislation on water after evolving a national consensus to bring it in the concurrent list and formulate an over-arching national legal framework for effective water management, conservation, development and equitable distribution with regulatory authority to deal exclusively with the matter. The existing legislations on water should also be comprehensively reviewed. Legislation and executive action must continue to be undertaken as water ranks

higher priority than any other. The Uttarakhand High Court has recognized the rivers - Ganga and Yamuna as a living entity, which means that anybody found polluting the river would be seen as harming a human being. It reflects a sense of urgency in containing water contamination and trying to rescue our rivers from rampant pollution.

India's agriculture sector consumes more water to grow same amount of crops compared to global average. Despite being a water scarce country, our agricultural produce is extremely water intensive. While the agriculture sector needed urgent water reforms, non-agriculture use of water also suffers from unplanned usage and wastage. A majority of India's households are using private means such as bore-wells to extract groundwater without any regulation or concern for conservation. The policy planning and implementation must have the participation of principal water stakeholders of our country like farmers, industry, energy producers, government agencies, rural and urban consumers etc. for improving the governance of water.

Future Course

Management of water supply required to harmonize demands and needs which are getting more and more complex and sophisticated. The first thing we must do is to mitigate the causes of water shortages as much as possible. A strategic and pragmatic approach, based on practical implementation has to be implemented in order to address the key challenges of water management. We need to have smart water concept with the gradual integration and convergence of ICT solutions implemented within the water domain.

The water management requires a collaborative approach between the pub-

lic and private sectors, and within the different levels of government from centre to state to local levels. Private expertise is essential in closing the water gap across the segment.

Optimism

The Indian water sector is on the crossroads today. In a developing country with huge requirements, there is a vast scope for growth. The total Indian water market is estimated to be about USD 14 billion with a growth rate of about 18 per cent every year. At SPML Infra, we are optimistic of India's water sector's prospects and our role within. We believe that the water infrastructure has not grown even to the extent of 10 percent of its true potential, which indicates that this single vertical holds out decades of sustainable growth potential.

India has for decades been a consumption-driven economy, but it needs to swing the needle towards infrastructure growth. We are pleased to see that the present Indian government appears to share the same view. Over the last three years, the Indian government has addressed the sector's potential with an unusual but highly effective response. The government has selected to correct the sectoral framework with the declaration of large projects under several new schemes having dedicated budgets for water sector. We believe that this sequential correction is critical and logical in policy framework and once it becomes a reality, we believe that projects will be completed faster, cash inflows will be quicker, in-project disputes will be addressed and resolved closest to real-time, the unproductive investment in long-drawn arbitration will decline, infrastructure growth will accelerate and the country will benefit.