

WATER & OUR FUTURE

By Subhash Sethi, Chairman, SPML Infra Limited



Water is vital for life but it is a finite resource. We cannot produce more water to cater the increasing demand or completely use up the current supply. The earth's water resources exist either in the form of oceanic salt water, is frozen, or trapped underground. Infact, out of 2.5% fresh water available, only about 1% of the world's total water supply is usable as drinking water for human consumption, rest remain locked in glaciers and snowfields. With the world's population continually growing, the quest for innovative sources of water is quickly becoming our greatest challenge.

The future of water in India is turbulent and our water infrastructure development and management is mostly non-sustainable for a

longer period. We need to think differently and swiftly how to manage water, drastic changes are required to develop robust water infrastructure and maintain them professionally.

With economic development, rapid urbanization and population growth, India's water demand is increasing significantly. The demand supply gap is getting wider and water conflict is becoming a common phenomenon. The affliction point is insufficient availability of clean water for distribution and scarcity that is spreading very fast. The water pollution, in general, and degradation of groundwater quality in particular are the added dimensions of water scarcity.

With the world's second largest population at



19 MLD Water Treatment Plant, Gagreen



240 MLD STP at Ahmedabad, Gujarat

1395 million currently is expected to become the most populous by 2024 and continue growing for years to 1.7 billion by 2050, India finds it difficult to serve the vast majority of that populace with safe, clean water. Supporting over 17% of the world's population is a daunting task considering that India possesses only 4% of the world's fresh water. Imagine the crisis that out of the very limited water availability, almost 80% of our surface water is contaminated. Nearly 60% of India's ground water reserves are contaminated with biological, organic, and inorganic pollutants. The Central Pollution Control Board (CPCB) has found that major rivers in India are unfit for use for any domestic and industrial purposes.

Indian Water Sector

India receives around 3,000 billion cubic metres of water every year through rainfall or other sources such as glaciers etc. and out of this, only 8% is collected. The total live storage in India's 130 reservoirs, monitored by Central Water Commission (CWC), was 49.536 billion cubic metres (BCM) as of June 3, 2021 which is approximately 28% of their live capacity.

As the country that withdraws the largest quantity of underground water, India fills groundwater aquifers at the rate of 458 bcm per year, while it extracts around 650 bcm of water from the earth. 89% of India's water resources are used for agriculture, out of which 65% is withdrawn from under the ground. Industry too obtains around 80% of their water requirements from underground sources. Thus, one of India's biggest challenges is to conserve ground water.

As per a NITI Aayog report, currently about 820 million people in 12 major river basins of India faces extreme water stress situation. India ranks poorly in Environment Performance Index that includes parameter like sanitation and drinking water and water resources. Out of the 191.19 million households in rural India, only 81 million (41%) have household tap water connection. India also has insufficient water storage capacities.

While some countries have capacities up to 5000 cubic metre per person storage infrastructure, India only has about 200 cubic metre per person. This results in droughts even in years that experience good monsoons.

Adding to the issue of lack of water availability is the issue of water quality. Even the water that is available is not fit for direct consumption. Groundwater in one-third of India's 600 districts is contaminated mainly through fluoride and arsenic. Annually about 37.7 million Indians are affected by water borne diseases, 1.5 million children die of diarrhea and 73 million working days are lost leading to an economic burden of water borne diseases of approximately USD 600 million a year.

Less than 50% of India's population has access to safe managed drinking water, and that too is inequitable. Then there is another big concern

The estimate suggests that mere 5–10% improvements in water efficiency in the agriculture sector would be enough to meet all the drinking water needs in the country.



500 MLD Water Pumping Station, Bangalore

for the water utilities in the country, that is the high levels of water and revenue loss in terms of Non–Revenue Water, which is almost 50%. The main reason behind such a huge water loss percentage is the aging water network and supply infrastructure along with almost non existing

There is a need to build the capacity, generate awareness, create required policy changes, guide people to change their behavior towards water use and adopt alternate way of doing things.

water metering in the country.

Water Infrastructure

If current trends continue, India is set to become a water scarce country in not too distant future. The scarcity is looming large on Indian cities and water utilities are facing their biggest challenge from aging infrastructure across the country. One of the most critical aspects of the aging infrastructure is literally buried underground, out of sight and out of mind. When failures occur, then only we are reminded of how much we take our water for granted. The water supply to household and businesses depends on a network of aging underground pipes, many of which are reaching, or have exceeded, the end of their useful life. The pumping machineries are dilapidated and number of water main breaks frequently.

In the past century, people have steadily moved from rural to urban areas to improve their standard of living as well as quality of life. In 1901, only 11% of India’s population was urban. A century later, over 34% of people are living in urban settlements which are expected to grow further to reach 60% in urban areas by the year 2050. A rapidly increasing urban population and the expanding middle class have driven up water demand, while years of pollution, inefficient farming, decentralized governance, groundwater exploitation and poor infrastructure have depleted the water supply.

There are several challenges being faced by water utilities in India, but ageing infrastructure is at the root of them all. In particular, urbanization

and population growth contribute to water scarcity and intensify the strain caused by ageing infrastructure. Among other key challenges is the problem of water loss or non-revenue water. Global non-revenue water estimates ranges from 20% to 40% of water produced depending upon the country, whereas it is as high as 50% to 60% in several cities in India. In some smaller countries like Singapore, Israel, Denmark, Netherlands, they all have managed to get their water losses at less than 10% which is worth following by our large cities.

Water utilities in India are faced with the need to address all of these challenges and revamping of infrastructure on priority for social, economic and environmental implications. For decades, we have invested heavily in fossil fuels – coal, oil, gas, and their derivative chemicals and plastic with little or no concern for consequences that today are evident in the form of pollution in water—we cannot drink, air—we cannot breathe, toxic environment around us and our failure to manage by-products and waste. In earlier days, we responded through a number of regulations, laws, and international treaties for water and made some progress in limiting and mitigating the consequences.

Those restrictions, even the alternative strategies to replenish and recycle the resources are weakening and we are again returning to old values, policies, and behaviors which were considered obsolete and not relevant. Water utilities in India are now tasked with the job of attempting to conserve a previously unregulated natural resource as it quickly becomes a politicized source of contention for different groups within society.

This is an issue that needs urgent attention from policy makers, relevant government officials, private partners and people, especially in cities where urbanization have become a more serious problem. While urbanization is a very important consideration which all developing countries need to manage efficiently, a significant number of cities in India is witnessing rapid population growth and utilities are finding they have constructed much lesser infrastructure than they needed.

We need to develop water and wastewater sustainability policy that has to promote

sustainable infrastructure in the water sector. The policy’s objective should be to ensure that all investments, policies and actions support water infrastructure in most efficient and maintainable manner to help water utilities enhance economic competitiveness and promote affordable operation & maintenance.

SPML Infra has been promoting access of clean drinking water to all with sustainable water infrastructure development for more than three decades and has executed over 600 projects in water and wastewater segments along with other key development. Being a leading player in Indian water sector, it continuously features amongst the world’s top 50 private water companies. With a number of water infrastructure development and key executed projects, it is providing drinking water facilities to over 50 million people across several states in India.

Key Initiatives

In view of the challenges that the water resources sector and water utility services in our country is facing, the Government of India has taken numerous steps to address the issue, while emphasizing on the use of technology for the purpose. Previously, water was a subject which was dealt by almost nine Ministries. The present government has integrated the work of these various Ministries and brought them under one Ministry of Jal Shakti. Hon’ble Prime Minister has also set a revolutionary goal of bringing piped drinking water to all households both in urban and rural India with a huge outlay of Rs. 6.47 lakh crore. Apart from this flagship drinking water supply scheme, government has also initiated a number of water resource management, wastewater treatment, irrigation and rain water harvesting programs with dedicated budgets to address the water scarcity issues and make water available for our future. These initiatives will also play a big role in economic and social development and making India a 5 trillion-dollar economy.

Way Forward

Better and sustainable water infrastructure is the need of time and our future depends on them. There is an ardent need to build advance and technologically equipped water infrastructure as our existing infrastructure is on the verge



2.5 ML Honsur Overhead Water Reservoir, Karnataka

of perishing. But simply building additional infrastructure cannot enhance India’s looming water-stress. We need to consider more integrated approach to water infrastructure development and management to ensure that water is managed in a much more efficient and environmentally sustainable manner. Given this dynamics, there should be an ongoing role for the private sector in the development of water infrastructure and public services delivered through it.

About the Author

Mr. Subhash Sethi is Chairman of SPML Infra Limited. An ISO 9001:2015 Company nurtured by him has become the leading infrastructure development company in India with over 600 completed projects in a rich legacy of four decades. He has been bestowed with a number of awards for his significant contributions towards the development of water and power sector in India.

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