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Vol. XIII Issue V
₹ 250/-



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Spearheading the 'Jal Andolan' of India
with Shri Rattanlal Kataria

14

2020 Union Budget of India:
Water Sector Gets a Boost

By Mr. Avinash Mishra

**WATER
INFRASTRUCTURE**
- THE NEED OF THE HOUR



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VOLUME XIII ISSUE V

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RNI No. DELENG/2006/18196

ISSN 2349-1337 @ 2014 Water Digest

CIN No: U74300DL2005PTC141800

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WATER INFRASTRUCTURE

Need of the Nation



//India's water infrastructure needs a complete overhaul and there is not much time left to do that. It gives me deep satisfaction that SPML Infra Limited has been

instrumental in providing clean drinking water facility to over 50 million people of our country."



– **Mr. Subhash Sethi,**
Chairman, SPML Infra Limited

We understand the value of water that is essential for life on earth. But the water sector in India is in turbulence and our water infrastructure development and management has been unsustainable. The depleting natural resources are upsetting the ecological balance and strong, concentrated efforts are required to develop robust water infrastructure and maintain them professionally.

The economic development, rapid urbanisation and population growth combined with lifestyle changes and consumption pattern is driving the demand for everything, and the value of water is becoming increasingly apparent. India's water demand-supply gap is getting wider and water conflict is becoming very common. The affliction points are insufficient availability of clean water for consumption and scarcity that is increasing. Water pollution, in general, and degradation of groundwater quality in particular are the added dimensions of water scarcity. The very existence of water is changing and becoming complex, needing new insights, strategies and a real action plan to mitigate the imminent challenges.

With the world's second largest population at 1391 million¹ currently, expected to become the most populous by 2024 and continue to grow year after year to reach a staggering 1700 million by 2050²; India finds it difficult to serve the vast majority of that populace with clean and safe drinking water.

Supporting 17.7% 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 70% of India's ground water reserves are already contaminated with biological, organic, and inorganic pollutants and the Central Pollution Control Board has found that 18 major rivers in India are unfit for any domestic and industrial water usage. About 200,000 people die every year in India due to inadequate access to safe water³.

WATER IS BUSINESS

Water is everybody's business and a cohesive approach is needed in the society to get to the issues that really matter. Water has become a high business agenda because industries depend on it. The continuity and future success of any business will be greatly impacted

by the availability, cost, and quality of water as it is becoming scarce, polluted, and too expensive due to rampant mismanagement. As a result of changes in human consumption, industrial usage and natural recharge systems, the water management challenges has become more complex. The prospect of water shortages, scarcities, and stresses will increase that will affect water availability, access, affordability, quality and ultimately loss of businesses across segments.

The evolving scenario with complexity and scarcity encourages us to think about the three significant water challenges that will combine to impact businesses and societies everywhere. These are efficiency challenges, security



challenges, and interconnectivity challenges. Each of these challenges incorporates many other challenges to businesses that are emerging from the changing status of water.

WATER INFRASTRUCTURE

If current trends continue, India is set to become a water scarce country in the near future. The NITI Aayog, in its report on water management, has identified that 600 million people face high-to-extreme water stress in the country and 75% of households that do not have availability of drinking water on their premises. It has also suggested that more than 100 million people will be affected by shortage of groundwater in 21 Indian cities

including big cities like Delhi, Bengaluru, Chennai and Hyderabad. By the year 2030, an estimated 40% of India's population will have no access to drinking water⁴.

The scarcity is looming large on Indian cities and water utilities are facing their biggest challenge from aging infrastructure. One of the most critical aspects of the aging infrastructure is literally buried underground; out of sight and out of mind. We take for granted, our access to safe drinking water and are reminded about it only when a failure occurs. The water supply to household and businesses in cities depends on a network of aging underground pipes, many of which are reaching, or have exceeded, the end of their useful life. The filtration



plants and pumping machineries are dilapidated and a number of water mains break 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 2050⁵. 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. In western countries, urbanisation took place when their economic conditions were improving steadily, and over a significantly longer period. The cities were planned with adequate funds and expertise to develop required infrastructure to manage their water and wastewater properly. In contrast, the magnitude of India's increasing population and levels of urbanization simply overwhelmed the financial and management capacities of the cities, including their water supply and wastewater management systems. The problems have been further aggravated because the policymakers have been interested in water-related issues only when droughts and floods occur. Once these natural disasters were over, their interest in water basically evaporated and the plans made during these challenging times, put to rest.

There are several challenges being faced by water utilities in India, but ageing infrastructure is at the root of them all. In particular, urbanisation and population growth contribute to water scarcity and intensify the strain caused by ageing infrastructures. Among other

key challenges is the problem of water loss or non-revenue water. Global non-revenue water estimate ranges from 30 to 40% of water produced, whereas it is as high as 50 to 60% in several cities in India⁶.

NON-REVENUE WATER

One of the major issues affecting water utilities in India is the considerable loss of water from the amount of water put into the distribution system and the actual water billed to consumers. A phenomenon called as non-revenue water (NRW), a well-known issue that results in large volumes of water being lost through leaks in supply system and not being billed to customers. It is a real challenge faced by majority of water utilities as a consequence of increased urbanisation, higher demand, increased prices and ageing and dilapidated distribution networks. In India, non-revenue water level is quite high which results in huge volumes of treated water being lost during transmission and distribution that affects the financial capability of water utilities through lost revenues and increased operational costs. A high level of NRW indicates that our water utilities are poorly managed with governance issues; lacks in accountability, technical and managerial skills necessary to provide reliable service to their citizens.

Water utility, which has initiated and sustained water loss management programs, has significantly gained in terms of financial returns and better consumer services. An example is the Bengaluru water loss management project which was initiated by the Bengaluru Water Supply and Sewerage Board. By using innovative technology of helium leak detection to accurately identifying and locating hidden leaks in large and small pipes, SPML Infra Limited has helped in significantly

reducing water losses from the existing 56% to 27%, thus saving over 40 million liters' of potable water per day. The saved water is being used to provide drinking water facilities to 110 extended colonies of the city. In a busy city like Bengaluru, executing a water loss management project in the central part was an engineering challenge due to very high traffic volumes combined with narrow streets of thickly populated areas and business hubs. The pipe rehabilitation work, also executed in areas with maximum number of slums, posed a tough challenge to bring down water loss from the existing levels to the present level. The project covered major areas in the city where 50-60 years old pipes were replaced with new pipes, leakages were sealed and electronic district meters suitable for GSM/GPRS communication for measuring flow and pressure control were installed.

FINANCING WATER INFRASTRUCTURE

The financing of water infrastructure is getting difficult for the government whereas the need for investment is becoming more critical and urgent. With the announcement of the Jal Jeevan Mission, reports suggest that the water and sanitation sector is likely to attract investment worth 6.3 trillion in the next five years⁷. This ambitious scheme by the Government of India will help in addressing the issues of drinking water supply. The government is planning an aggressive target of providing piped water to all households by 2024. This indeed is a huge challenge given the massive number, of connecting about 140 million remaining rural and urban households in less than five years' time⁸. With the execution plan in mind, the government has created a single ministry as 'Jal Shakti' by merging rural drinking water & sanitation and the river water, Ganga



Rejuvenation and water resources ministries. The single water ministry would look into the departments of ground water, surface water and its executing departments together, that could make a big difference in the execution of 'Nal se Jal' scheme.

The international funding for water infrastructure development has also increased from development agencies such as Asian Development Bank, World Bank and JICA in the past few years. India currently spends about 6% of its GDP on infrastructure development, less than several Asian countries, and nearly half of the 11% being invested by China. Both Central and State governments are finding themselves increasingly constrained to fund large infra development projects for augmenting water supply and wastewater management. The financial needs of the water sector are

growing exponentially with major gaps to meet the costs of rehabilitating the existing infrastructure and to build new facilities. The budgetary allocations to the water sector is not sufficient as per the current requirement of infrastructure development and there is a large financial gap, which can only be met by greater allocations of budgetary resources, more efficient use of those resources, and greater contributions from water users.

A combination of methods could be considered to promote sustainable water infrastructure:

Efficiency in Management: The utilities could emphasize on cutting costs and investing in water systems using a risk-based approach with adopting the best practices and bring the much needed efficiency. The utilities must adopt water efficiency

at all levels, from assets - pipeline, treatment, pumping, supply line, metering and set efficiency levels for manufacturers and others, to promoting water efficiency in operations and services.

Optimum Pricing: Water in India is mainly subsidized and water utilities may consider charging the consumers for the full cost of construction, operation and maintenance of water systems that is essential for sustainability.

Watershed Approach: The importance of infrastructure development and growth decisions within the context of how water flows through a watershed must be taken universally, barring boundaries of cities and states. Watershed boundaries may not conform to state or municipal boundaries, so partnerships among centre, state, and local authorities

are essential for development and financing of a pan-India water infrastructure.

Water Governance: Improving governance in water sector is important since water availability is fragmented in the country. Water is a state subject; water supplies, irrigation and canals, drainage and embankments and storage fall in the state list. There is a need to recognize water as a finite and vulnerable resource. The government should take urgent action for comprehensive water legislation at national level for effective water management, conservation, development and equitable distribution with regulatory authorities to deal exclusively with the matter.

Alternate financing of water infrastructure has become significant due to several factors including limited public money and increasing construction and maintenance costs that are encouraging governments to explore alternative investment models. For India, some financing alternatives could be:

Public-Private Partnership (PPP): Public-private partnerships have been tried earlier in India with water infrastructure projects, but with limited success as people think of water as their right and as a government obligation to provide them. The need is to provide complete control of water infrastructure from source to tap, metering, and billing with cost implications. The return on investment in water sector should be enhanced through regulations to make the sector a rewarding business proposition for the private companies. With a number of PPP projects in water supply, SPML Infra has had a mixed experience with PPP projects for cities water distribution.

Public Bonds: Bonds are useful for financing large water infrastructure

projects that will generate services and income for many years, as the money can be repaid over time.

The advantage to municipal and public utility bonds are typically tax-advantaged, which allows the borrowing entity to pay lower rates to investors.

Local Taxes: The funding of water infrastructure can be done through levying some kind of local taxes from consumers rather than completely relying upon the government funding. The tax amount and period can vary depending on the requirements of specific municipalities with consideration of water availability and future demand.

Insurance, Pension Funds: India has a huge reserve in insurance and pension segment and these funds can be utilized for financing water infrastructure projects directly or through the viability gap funding (VGF) scheme which is a one-time grant to augment public-private-partnerships (PPPs) projects to fill the funding gap and making projects commercially viable.

Development Finance: Major development institutions such as the World Bank, Asian Development Bank, JICA and others provide funding for water infrastructure projects and also explore blended finance and local pooled finance facilities to mobilize private sector investment.

Alternative Rate Structures: Water tariffs can be designed in such a way that encourages efficiency and conservation. This practice not only saves water but generates money for infrastructure development and management by making everyone aware that water is not a free or infinite resource. Utilities can consider higher water rates for any water used beyond

the fixed quantity which will also improve the efficiency of its system operations.

WAY FORWARD

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. But simply building additional infrastructure cannot enhance India's water-stress. This is an issue that needs urgent attention from policy makers, relevant government officials, private partners and people at large, especially in cities where urbanisation has become a more serious problem.

We need to consider a more integrated approach to water infrastructure development and management to ensure that water is managed in a much more flexible, efficient and environmentally sustainable manner. Given these dynamics, there should be an ongoing role for the private sector in the development of water infrastructure and public services delivered through it.

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

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