



WATER INFRASTRUCTURE IN INDIA: NEED FOR URGENT OVERHAUL

As India strives ahead on a growth path and faces massive increase in urban as well as rural population. The quest for safe and clean drinking water would be paramount. The article tries to analyse the challenges and options available

The haphazard way in which we supply drinking water to the large mass of population is indicative of India's disregard for basic human necessity, a safe and clean drinking water on 24x7 basis. The regular fight over filling of water pitchers at local community places, to long trek over scores of kilometres to open-bawadis, belies all hopes of providing clean and safe drinking water in 21st century India.

Despite billions of dollars invested in setting up water infrastructure such as dams, canals, wells and tube wells apart from water treatment facilities in Tier I, II and III cities, a large swathe of population that lives in rural

India remains untouched by clean drinking water. Rural India that is largely dependent on wells and hand pumps not only fends for clean drinking water but even commits suicide for lack of water to irrigate their farm lands.

It should be noted that water, in India is highly seasonal where more than 50 percent of total precipitation or rainfall happens in 15 days, while 90 percent of river flows happen in just four months. In the past when technology was not advanced Indians used imaginative community-level methods of water husbandry, however the methods have long become obsolete and require massive investments in building new infrastructure and overhauling the existing ones.



According to a World Bank Report, India stores a small quantity of water from its fickle rainfall compared to arid rich countries, such as the United States of America and Australia. While developed countries have built over 5,000 cubic meters of water storage per capita, China has a storage capacity of about 1,000 cubic meters per capita, at the same time India's dams can store only 200 cubic meters per person. Moreover, India can store only about 30 days of rainfall, compared to 900 days in major river basins in arid areas of developed countries. Such shortage of storage capacity reflects that the country remains poorly endowed with water infrastructure even after 72 years of Independence.

India even stands poor in harnessing hydropower potential in comparison with industrialised countries. While industrialised countries harness over 80 percent of their economically-viable hydropower potential, in India the figure is only 20 percent, despite the fact that the Indian electricity system is in desperate need of peaking power.

Experts believe water, especially in the water-rich North-East of the country, can be transformed from a curse (due to major floods every year) to a blessing only if major investments are made in water infrastructure. Recognizing this, the Prime Minister has recently called for the establishment of "a TVA (Tennessee Valley Authority) for the Brahmaputra" which would combine major water infrastructure with modern management approaches to make water a stimulus for growth.

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The Water Challenge

India faces water issues owing to excessive and inefficient use of water used for Agriculture, depleting ground water levels, increase in river pollution and extremity in the monsoon season. Water Resource Group (WRG) 2030 Report, expects, burgeoning population, urbanization and rapid economic growth to lead to 50 percent gap of around 754 billion cubic meter (BCM) in water supplies and projected demand.

It is expected that barring East India and J&K, entire country would be facing moderate to severe water stress. The same report highlighted around 37 measures to bridge the water availability gap. The cheapest measure would entail investments of \$5.9 billion or Rs 41,300 crore by 2030, whereas the total government annual expenditure towards water sector has been to the tune of \$2.3 billion in 2009. If one were to explore cheaper alternatives to lower this deficit then 80 per cent of it is to be addressed by improving the efficiency and productivity in agriculture sector which accounts for 80 per cent of water demand till 2030.

Yellapu Santosh and Sabyasachi Mukerji of India Nivesh Institutional Securities expect the "triple play effect", (1) River clean-up programmes, (2) High government spending, and (3) Change in the regulators perspective, to create a favourable long-term outlook towards the water treatment sector.

Environment and Forest Ministry is focusing on cleaning-up of rivers across the country. As per a 2015 Central Pollution Control Board (CPCB) report, sewerage generated from 650 urban cities along 302 river stretches has increased from around 38,000 million litres per day (MLD) in 2009 to 62,000 MLD in 2015, reflecting 63 per cent increase. Against this, 816 sewage treatment plants (STPs) have

an installed capacity of 23,277 MLD, indicating that only 37.5 percent of the need is addressed.

Transformation of water infrastructure

Today India has a capacity to store about 200 billion cubic meters of water, a gross irrigated area of about 90 million hectares, and an installed hydropower capacity of about 30,000 megawatts. These investments in water infrastructure transformed the economic and social development of India. The assured supplies of water meant that crop yields on irrigated land were measurably much higher than yields from rainfed agriculture, allowing India to achieve national food security and associated affordability of food. Hydropower from many of the large dams also provided the foundations for Indian industrial growth and groundwater irrigation.

The World Bank reports states that these direct benefits -- irrigation and hydropower -- are only part of the story of the impact of major infrastructure. They, in turn, impacted other industries -- through backward linkages with input industries like fertilizer and tractors, and through forward linkages with the food processing industry -- as well as fuel the income-linked consumption of general goods and services.

So at the end of the day, the record is overwhelmingly clear -- investments in water infrastructure in India have resulted in massive reductions in poverty, and it is actually the poor and landless who have been the biggest beneficiaries.

Going Ahead:

India at present not just need huge water storage infrastructure but in many parts of the country there are also substantial returns from investments in small-scale, community-level water storage infrastructure such as tanks, check dams and local water recharge systems. And there are massive needs for investment in water supply systems for growing cities and for underserved rural populations. India's cities and industries also need to use water more effectively, and there will have to be massive investments in sewers and wastewater treatment plants.

The need arose because much of India's existing infrastructure is crumbling and there is an enormous backlog of deferred maintenance. The end result is the familiar sight -- crumbling, rusting, leaking dams, canals and pipes. However, the water sector is facing a major financing gap. The annual requirement for rehabilitation of existing infrastructure alone is estimated to be around Rs 20,000 crore.

The India Water Vision expects new investments with very modest allowances for sewage treatment to cost about Rs 18,000 crore a year. Annual allocations in the recent past have varied between Rs 9,000 crore and Rs 17,000 billion a year. These needs are amplified by the

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fact that large proportions of recurrent budgets are not spent on electricity, irrigation and water supply subsidies but were spent on personnel.

On the "supply side" there are ultimately only two sources of financing – tax revenues and user charges – and both are falling. The resulting financial gap can only be met by a combination of methods which include greater allocations of budgetary resources, more efficient use of those resources, and greater contributions from water users. Although, government has done some investment with new schemes and grants made available under AMRUT, Clean Ganga Mission, Water Supply and Irrigation Funds and Smart City Mission. The international funding for water infrastructure development has also increased from development agencies such as ADB, World Bank and JICA in the past few years. However, the overall investment required in the sector is estimated to be Rs 620,000 crore (\$129 billion). India currently spends about 6 percent of its GDP on infrastructure, less than several countries in Asia, and nearly half of the 11 percent invested by China.

Both central and state governments are finding themselves increasingly constrained to fund large infrastructure development projects to augment water supply and manage waste water. 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 are not sufficient as per the current requirement of infrastructure development and there is a large and growing 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.

But simply building additional infrastructure cannot ameliorate India's looming water-stress. There is an urgent need to ensure that water is managed in a much more flexible, efficient and environmentally sustainable manner.

Subhash Sethi, chairman of SPML Infrastructure cites combination of methods 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 adoption of best practices and bringing 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 promote 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, and operation & maintenance of water systems that are essential for sustainability.

Watershed Approach: It is very clear that India's water infrastructure needs a complete overhaul and there is not much time left to do that. 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 center, state, and local authorities are essential for development and financing of pan India water infrastructure.

Water Governance: Improving governance in the 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 the 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 the national level for effective water management, conservation, development and equitable distribution with regulatory authority to deal exclusively with the matter.

Vinayak Chaterjee, chairman of Feedback Infrastructure, concludes emphatically as he believes, one of the biggest items which have been promised in the BJP manifesto is actually something this country deserved decades ago. It is water supply to every household -- which the BJP manifesto has classified as Nal se Jal -- across India, to every household.

"This comes on the top of the quite successful Saubhagya Programme which is 100% rural electrification for which the targets have been met with a lot of enthusiasm and with a lot of hard drive from PMO downwards. So, water is going to be a big focus. Companies in the business of making pipes, valves, pumps, filters, and all this and water treatment chemicals etc. should gear up for some very aggressive times ahead," Chaterjee said. ■

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