

# NECESSITY TO CURB WATER LOSSES

*By Mohammed Naser Azeez, Managing Director, Aquality Water Solutions Pvt. Ltd.*

Water has become an economic, social and political subject with increased importance. Every day, water is on the headlines amongst the biggest stories. We need to think deeply about the current and emerging challenges and work towards finding an enduring solution.



The surface of planet earth is covered with water but out of just 3% of fresh water, a very limited around 0.5% is available to be used for our livelihood. Water is not only the source of our life but also at the centre of all economic, social and ecological development. These facts with increasing population put growing pressure on water resources worldwide, and challenge the water sector to manage, preserve and sustain the resources.

India is the 2nd largest water consumer in the world. The country needs around 740 billion cubic meters of water per year to serve its population. Over one third of India's 1395 million population lives in cities which is set to grow to half in few years' time. With economic growth, the urbanization is happening rapidly and resulting in major pressure on water supplies, wastewater collection and treatment, water quality and public health. Further, the water demand is expected to surpass supply within the next 10–15 years.

With increasing population and rising consumption level, India has already been confronted with a serious resource challenge. The available water sources have reduced over the years but the demand keeps on escalating due to several factors including population growth and urbanization trends. The water demand will continue to increase and by the year 2025, it is expected to grow by over 20%, fueled by the industrial requirements which are projected to double from 23.2 trillion liters at present to 47 trillion liters. Domestic demand is expected to grow by around 40% from 41 to 55 trillion liters while irrigation will require 14% more to 592 trillion liters up from 517 trillion liters currently. The water ministry predicts

that per capita water availability will reduce by 36% in 2025 and by about 60% in 2050 from the level of 2001. While agriculture will remain the major water user in India, the challenges posed by growing urbanization on water calls for a movement to be participated by all stakeholders.

## Dealing with Complexity

The simple way to address this complex issue will require building a resilient water system that is based on harnessing each water drop and reuse it continuously. Water flows in nature to be used by different ecosystems and sectors, then returns to nature in other forms and characteristics to be filtered and purified to enter the cycle again. However, water is becoming highly contaminated with limited availability due to ongoing development of socio-economic activities and decreasing amount of water needed to dilute pollutants because of climate change and water diversions.

We need to start changing water management practices. Creating a mid-phase between wastewater treatments and releasing water to nature may be a solution to tackle water shortage even if it requires additional treatment

We need to be innovative, aware of our role and accountable for our actions to build a sustainable water secure future. Water is our most precious asset that we need to use, preserve, and sustain, so we can deliver it in a healthy condition to the next generation.

for wastewater. Thus, there is an urge to adapt to this reality and find innovative approaches not only to do what nature has been doing so far but also to provide long term environmental, societal and economic benefits. We can simply delineate the above-mentioned by using recycle, reuse, and recovery water management. The practical integration of these three pillars allows us to

achieve water efficiency and return water as an enabler and retain its quantity and quality.

### Water Loss

One of the major issues afflicting water sector in India is the considerable loss of water from the amount of water put into the distribution system. 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 invoiced to customers. It is a real challenge faced by majority of water utilities as a consequence of increased urbanization, higher demand, increased prices and ageing and dilapidated distribution networks. In India, non-revenue water level is quite high, almost 50% of the total water, 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 and technical and managerial skills, old and aged infrastructure, slow adoption

of innovative technology and solutions necessary to provide reliable service to the citizens.

In western countries, urbanization 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 problem has been further aggravated because the policymakers have traditionally been interested in water related issues only when droughts and floods occur. Once these natural disasters were over, the interest in water basically evaporated and plans made during the challenging times put to rest.

The water utilities in India are struggling to cater the demand of clean drinking water to residents and commercial establishments due to ever-increasing populations, expanding service areas,



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declining resources, rampant water pollution and high level of water loss. Reducing water losses is critical to efficient resource utilization, efficient utility management, enhanced consumer satisfaction, and reduction in capital-intensive capacity addition. The cost of water services is much lower when undertaken through investments in reducing water losses rather than through investments in capital projects to augment supply capacities. The utility which has initiated and sustained water loss management programs has significantly gained in terms of financial returns and better consumer services.

The necessity for curbing water loss is particularly important for the operational and financial feasibility of water utilities; but it is hard to understand that why efforts to improve the situation have been so limited. An international report suggests that the water loss in India is almost 50% and placed at the bottom of world's top 40 nations' survey. The European countries fares better than Asian and African countries in water loss management with as low as 4% in Netherlands and 6% in Denmark. Among the Asian countries, Japan has the best figure of managing their water losses at 7%, Australia and Germany with 8% and Israel with 9% are leading to limit their water losses appropriately.

distribution system is loaded with energy through the distribution and treatment processes. Thus, energy is also lost along with the water. Therefore, reducing water loss to an optimum and acceptable limit is important to overall efficiency and financial sustainability of the utilities, since it provides additional revenue and reduces cost. Although it is not feasible for water utilities to eliminate the water loss completely, even reducing it by half of the current level in cities appears a realistic task. If we can achieve this much reduction, the utilities can save good amount of money every year from both increased revenues and reduced costs and can service additional population without new investments in production facilities nor drawing further on scarce water resources.

The integration of water and wastewater management allows us to achieve water efficiency and make water as an enabler to retain its quantity and quality.

Cities like Singapore, Manila and Phnom Penh have successfully implemented water loss management programs to reduce their NRW level to below 20%. For water utilities in India, reducing water loss should have been their top priority to follow when addressing increased demand for piped water supply. Expanding water networks without addressing water losses will only lead to a cycle of waste and inefficiency.

### Capacity Building

India need to think seriously about capacity building in urban water supply and wastewater treatment and reuse as an important step. Given this issue, as the need arises, the exhaustive control of the production, consumption, and quality of this precious resource is essential. Hence, both the water industry and the wastewater need to undergo a rigorous process of digital transformation in their production, distribution, treatment and reuse.

The higher volume of losses is also related to poor energy efficiency, since water transported in

Through the incorporation of innovative technology that allows monitoring water activities and generating real-time data, water loss could be managed appropriately. Thanks to the newer information and digital technologies and intelligent machine and equipment, achieving a greater efficiency in the water operations, reduce management expenses and improve indicators, such as the water use efficiency and curbing on losses have become possible.

Professional associations of service providers could play a key role in disseminating best practices, implementing full scale benchmarking, and providing training and certification for water sector professionals. Training institutions would need to adapt their programs, currently focused mainly on technical design issues, to the new needs of the urban sector.

Special information programs would need to be developed for key stakeholders including politicians, consumers, decision makers, engineers and the non-government organizations with special interest in water supply and wastewater management.

In the rural sector special training programs would also need to be developed to build the capacity of local municipalities and gram panchayats.

### Way Forward

Water is paramount to a city's sustainability, but too often it is being wasted, polluted and taken for granted. Utilities which carefully and creatively use their water assets for strategic urban advantage will ultimately be more sustainable and competitive. To succeed in an increasingly complex water situation, the utilities need to focus on alternative way for a more efficient water management and the new technology in maintaining municipal water systems.

A strategic and pragmatic approach, based on real time data and business process analysis need to be implemented in order to address the key challenges if they are to thrive and remain competitive over the coming decades. We need to prioritize greater investment and move faster from the strategizing and goal setting into actions that reduces water loss, improve the availability



4000 LPD 6 stage drinking water plant, Hyderabad

of water and maintain equitable supply of quality water.

Aquality Water Solutions Pvt. Ltd. believe that innovation holds the key to control and manage the water loss with sustainability and has contributed significantly with high technology water treatment

plants and distribution solutions that has helped in reducing water losses and managing water in a more professional manner. As a reputable and responsible organization, it firmly believes in creating value rather than pursuing business to create a positive impact at making water an important resource.

### About the Author

**Mohammed Naser Azeez**, a first generation entrepreneur has over 15 years of multi-cultural experience in water management and relevant industry segments. He established Aquality Water Solutions as a strong mission driven organization with the sole intention of providing clean drinking water facility to the masses.

To know more about the contributor of this article, you can write to us. Your feedback is welcome and should be sent at: [deepak.chaudhary@eawater.com](mailto:deepak.chaudhary@eawater.com).