WATER ACCESS: ENSURING UNIVERSAL AVAILABILITY

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

Access to safe drinking water is critical for everyone, no matter who they are, what they door where they live. In many cities around the globe, water is not available all day, every dayand safe water availability varies from one city to another and between countries. Thosewithout water have to queue at stand posts—with the additional burden of often notknowing when water may come.

With a water crisis looming over India, over 40 percent population already facing severescarcity and this figure is just growing. According to the 2030 Water Resources Group, if wecontinue to consume water at the current rate, India will only have half the water it requiresby 2030 - a flashpoint within seven years.

Only 4 percent of the limited freshwater resources exist in India and freshwater sources areunder heavy stress. Water demand continues to outstrip supply, and this is predicted toincrease by 40 percent by 2030. As per government estimates, overall water demand inIndia will increase from 710 BCM in 2010 to 1,180 BCM by 2050, an increase of 67 percent.

The main reasons for this escalation in water demand are cited to:

- **Population Growth:** India's population is projected to continue growing until at least 2050. The United Nations estimates suggest that India's population could reach around 1.7 to 1.9 billion by 2050, from the current 1.4 billion. Managing this huge population growth and ensuring drinking water facility for all the citizens are key challenges for India's policymakers and utilities in the coming decades.
- **Urbanization:** India has been witnessing rapid urbanization, with a significant increase in the urban population. It is projected that over 50 percent of the country's population will be living in urban areas by 2050 from the current level of 36 percent. As people move to cities, the demand for water, particularly for domestic and industrial purposes, tends to rise.
- **Infrastructure:** Insufficient water storage infrastructure and the inadequacy of water supply and sanitation in many areas are pressing challenges that contribute to water

scarcity and contamination. India's water infrastructure, in many cases, is aging, having been built several decades ago, and a significant portion of it has surpassed its effective lifespan. Building and maintaining such infrastructure require substantial investments.

Many of India's water storage facilities, dams, reservoirs, and treatment plants were constructed during a time when population and water demand were significantly lower than present level. These structures are not equipped to handle the current volume of water required to serve the ever growing population. Maintaining aging infrastructure is a challenging task for the government and water utilities. The cost of repairs and rehabilitation often exceeds the available resources. Neglected maintenance can lead to leaks, contamination, and inefficient water distribution, further worsening water scarcity issues and accessibility challenges.

- **Agriculture:** The agriculture sector in India is a significant consumer of water resources. Agriculture is accounting for the majority of the country's total water usage. It is estimated that more than 80% of India's available freshwater is used for irrigation. Achieving a balance between meeting the food needs of a growing population and conserving water resources is a complex and ongoing challenge for India's agricultural sector.

Efforts to improve water management and promote sustainable agricultural practices are essential to ensure the long-term viability of agriculture in India while safeguarding the country's water resources for future generations.

- **Economic Development:** Economic development in India has been a topic of significant interest globally and a topic of discussion over the years. The landmark economic reforms of 1991 were pivotal in unleashing India's economic potential. Economic growth leads to increased water demand, both for agriculture and industrial sectors. As India's economy expands, the demand for water-intensive industries such as manufacturing, energy production, and food processing will also increase.

- **Regional Disparities:** Water access disparities in different regions in India are a significant challenge due to the country's diverse geography, climate, and population distribution. Some regions receive abundant rainfall, while others are arid or semi-arid, leading to stark differences in water availability. Northern and north-eastern states

generally have more water resources due to the presence of major rivers like the Ganges, Yamuna, Brahmaputra, and their tributaries. In contrast, peninsular southern states often face water scarcity issues.

India relies heavily on monsoon rains for its water supply. Irregular or inadequate monsoon rains generally lead to droughts and water shortages in some regions, particularly in central and southern regions. Interstate disputes over the sharing of river waters are common. For example, the sharing of the Cauvery River's waters has been a contentious issue between the states of Karnataka and Tamil Nadu. Urban areas generally have better access to treated water supply and sanitation facilities, while rural areas typically face greater challenges due to limited infrastructure and resources. Even, sometimes the regions affected by conflict, climate change, or natural disasters experience further strains on water availability and access.

Addressing these disparities requires a combination of efficient water management practices, sustainable policies, and a focus on equitable distribution to ensure that all regions have access to an adequate and reliable water supply.

- **Financial Constraints:** To address the water accessibility challenges, substantial investments are required. These investments should encompass both the rehabilitation of existing infrastructure and the construction of new facilities that can meet the water demands of a growing and urbanizing population. Many water utilities in India lack the financial resources to invest in water infrastructure and improve water services.

Government Initiatives: The Government of India has recognized the importance of addressing these water related challenges. Initiatives like the Jal Jeevan Mission with huge budgetary allocation for making drinking water accessible to all households, Atal Bhujal Yojana, which focuses on sustainable groundwater management, and the AMRUT (Atal Mission for Rejuvenation and Urban Transformation) program, which targets urban water supply and sanitation, are steps in the right direction.

AQUALITY Contributing to Clean Water Access

AQUALITY is dedicated to providing safe drinking water to a diverse range of clients through tailor-made, high-quality water treatment solutions that incorporate cutting-edge technologies.

The service network includes civilian households, defense installations, pharmaceutical companies, textile manufacturers, commercial enterprises, educational institutions, technological firms, and industries requiring ultrapure water.

AQUALITY places a strong emphasis on delivering innovative solutions because it firmly believes that addressing contemporary water challenges requires unconventional approaches. As a committed and responsible entity, it firmly believes that innovation is a fundamental driver of an organization's growth and long-term sustainability.

A cutting-edge solar-powered water treatment system designed to harness the solar energy and deliver clean, safe drinking water has been the latest innovation. This revolutionary water treatment and purification solution prioritizes environmental sustainability, energy efficiency, and practicality, making it an excellent choice for off-grid or remote regions with limited access to electricity.

The solar-powered water treatment solution not only ensures access to safe drinking water but also contribute to sustainability efforts by reducing reliance on fossil fuels and decreasing greenhouse gas emissions. Moreover, these systems have the capability to recycle used water for non-potable purposes, facilitating the establishment of a circular water economy. AQUALITY firmly believes that these technologies are pivotal in addressing water-related challenges, especially in regions where conventional energy sources are scarce or inaccessible.

ABOUT THE AUTHOR

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A first-generation entrepreneur, he possesses a passion for innovation and a willingness tomake changes in water treatment. He founded the renowned Aquality Water Solutions witha vision to offer technologically advanced solutions to domestic, institutional, and industrialclients. Driven by a strong desire to improve access to clean drinking water, he has madesignificant contributions in enhancing the lives of people through unwavering commitment, groundbreaking technological innovations, and a steadfast pursuit of quality excellence.