CITY OF DRY TAPS

Water turns strategic as Bangalore faces deficit, pushing tech innovation and community action to avert deeper urban crisis

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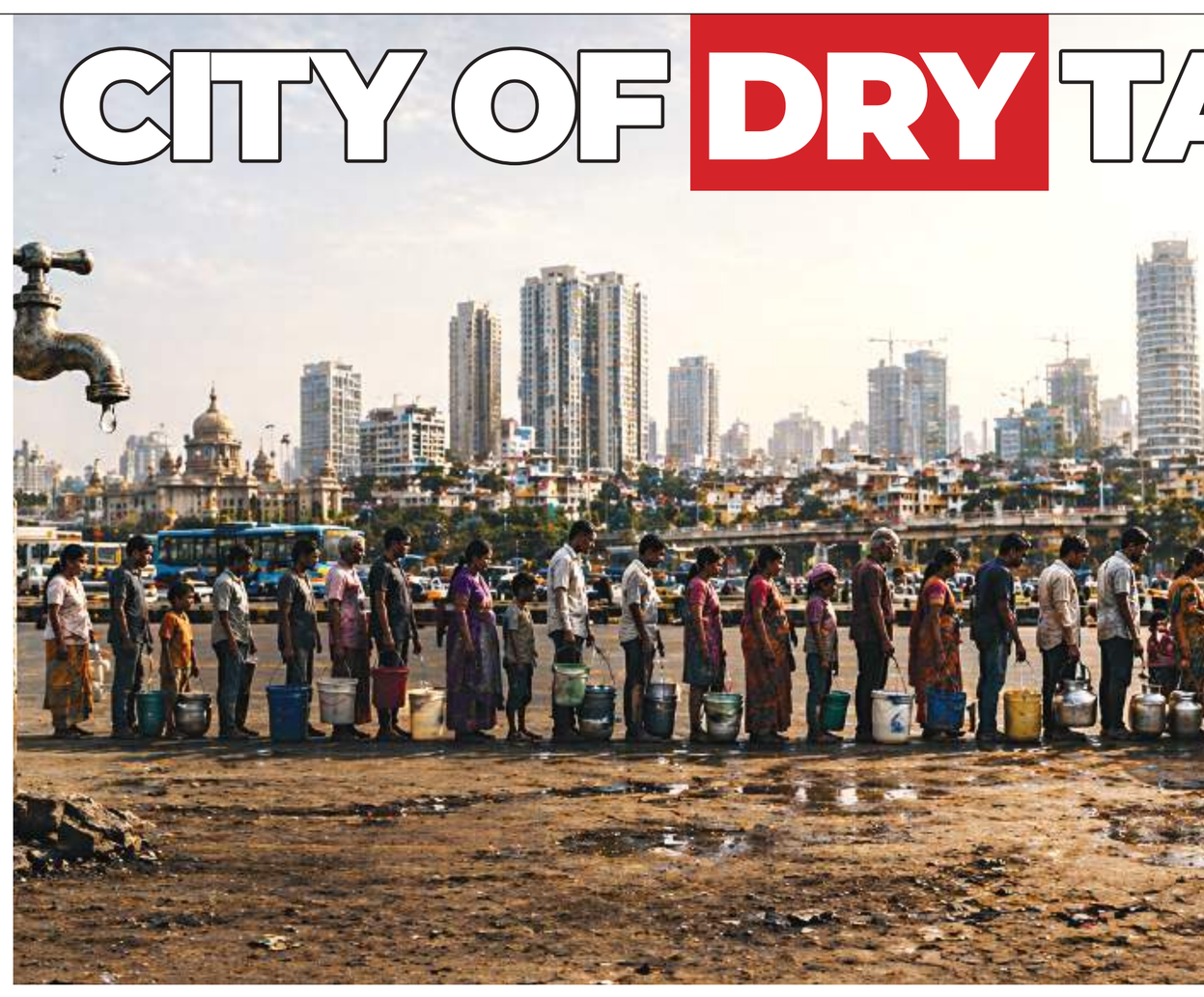

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"My borewell is pumping less water this year," says Krishna Rao from South Bangalore, and his worry is now the city's reality. With summer at its peak, shrinking groundwater, patchy Cauvery supply and rising dependence on private tankers are exposing the cracks in a fast-expanding Bengaluru where demand has raced ahead of recharge and infrastructure.

Across several pockets, groundwater units are already over-exploited, leaving neighbourhoods scrambling for every drop. And the numbers only deepen the alarm.

According to NeeRain, BWSSB estimates Bengaluru needs about 2,600 MLD of water daily, but supply from the Cauvery and groundwater together still leave a gap of roughly 500 MLD; a shortfall bigger than the total water supply of many mid-sized Indian cities.

A systemic issue

Bangalore's water crisis is not a single problem. It reflects a systemic failure across supply, infrastructure and governance. Drying borewells, an economy driven by tankers, leakages, faulty meters, pipeline inefficiencies, and the paradox of both excess rain and water scarcity; the list is long.

The city, this year, has avoided a full-scale repeat of the 2024 panic, thanks to better reservoir levels and Cauvery expansion. Experts, however, warn that the city is merely postponing, not fixing, a systemic water crisis driven by groundwater collapse, tanker dependence, and urban sprawl.

Karnataka's reservoirs are around 43% full, with the Cauvery basin at roughly 48% capacity as of mid-April. This is healthier than last year, though officials warn summer depletion remains a concern. The BWSSB says Bangalore is more prepared this summer, partly because the Cauvery Stage V expansion has crossed 50% coverage, improving supply in newer areas.

However, BWSSB has still identified 448 "high-alert" water-stressed pockets across the city for 2026 summer planning. Large parts of East/North Bengaluru, especially peripheral tech corridors, continue relying on tanker water despite piped supply improvements.

Tech turns water tide

While technological innovations such as AI, IoT, rainwater harvesting systems, wastewater recycling and smart metering are available, their adoption remains uneven. Uptake is typically faster where there are clear cost savings and long-term commercial viability.

Technologies such as borewell sensors, tank automation, leak detection systems and smart metering have seen quicker adoption and scalability.

Experts opine that the thought process is now centred on systems thinking. "It's about viewing water as an integrated system rather than as isolated conservation efforts. For instance, AI-led decision systems help analyse patterns, predict leakages and forecast demand. IoT-enabled water systems allow remote monitoring of water sources.

Design interventions, both technological and architectural, are redefining water infrastructure, be it rainwater harvesting, water-efficient buildings or circular water reuse systems," says **Dr Lakshmi Jagannatha,** Chief Executive Officer, Innovation Centre, and Executive VP, COMET Foundation, IIIT-B.

Deur Water, a Bangalore-based water technology firm, is tackling this crisis. Raghavendra Bhat, Managing Director of Deur Water, says water conservation earlier largely meant installing rainwater harvesting pits or urging people to cut usage. Today, he notes, startups are making it more practical, measurable and technology-driven.

"Sensors and monitoring systems can now show where water is being wasted, detect leakages and track daily consumption in real time," he says. Apartment complexes, he adds, can recycle wastewater for flushing and gardening, while industries can reuse treated water in operations.

Treatment plants, Bhat points out, can also be monitored remotely instead of relying solely on manual supervision. "The shift is from simply saving water to managing it smarter."

However, startups attempting to scale water-tech solutions in India face significant challenges.

"Typical challenges include long gestation cycles, scarcity of investments, a highly complex deployment environment, and capital-intensive operations. Another critical factor is the dependency on government support to succeed and scale," says Jagannatha.

She adds that some key innovations on her wish list include a fully decentralised smart water grid with real-time monitoring of all resources, and a circular water economy to minimise wastage.

Old fixes, new urgency

Addressing the water crisis requires a combination of practical strategies and responsible water use. One of the most effective methods is rainwater harvesting, which involves collecting and storing rainwater from rooftops, open spaces and catchment areas.

Instead of allowing rainwater to run off, it can be stored in tanks or directed into recharge pits to replenish underground aquifers. This offers a simple yet effective way to increase water availability during dry seasons and reduce dependence on distant sources.

Groundwater recharge and watershed management are equally important. Restoring traditional water bodies such as ponds, lakes and wetlands enables natural replenishment of groundwater reserves. Preserving green spaces, including forests, also helps sustain the water cycle by allowing rainwater to percolate into the ground.

"Efficient water use and conservation practices are equally essential. In agriculture, where a significant volume of water is consumed, techniques such as drip irrigation and sprinklers help farmers use less water while improving productivity. In cities, repairing leaking pipes, using water-efficient appliances, and practising responsible consumption can help avoid unnecessary losses," adds **Braja Kishore Pradhan,** environmentalist and founder of Aahwahan Foundation.

Another promising approach is wastewater treatment and reuse. Reclaimed wastewater can be used for irrigation, landscaping and industrial applications, reducing the demand for freshwater. Increasingly, communities are adopting such recycling methods to use water more efficiently and sustainably.

Social cues

Water, once seen as a cheap and abundant resource, is now increasingly viewed as a strategic asset. The perception is shifting from cost sensitivity to value sensitivity. Community participation remains the cornerstone of effective and sustainable water management, playing a crucial role in broader community development.

Pradhan says, women's involvement will also be effective in the management of water, as they will be able to contribute their knowledge and leadership skills. "With the collective efforts of the community, it is possible to address water scarcity and promote social development and equality," says Pradhan.

When schools, households, institutions and local groups actively collaborate to conserve and manage water, they not only ensure the sustainability of local resources but also foster a culture of shared responsibility and awareness.

"The path to addressing the water crisis lies in collective action and sustainable solutions. This includes adopting strategies such as rainwater harvesting, groundwater recharge, efficient irrigation practices, and wastewater reuse. Women's active involvement brings invaluable knowledge and leadership, making water management more inclusive and equitable," says Pradhan. Together, these strategies not only address water scarcity but also promote social development, equality and resilient communities.

ORGANISATIONS WORKING ON WATER IN BANGALORE

- **Openwater is a water-tech startup spun out of the IISc Flexible Electronics Lab, focused on wastewater treatment and decentralised recycling systems. It develops tech to help homes/ industries treat and reuse wastewater locally.**
- **Uravu Labs is a climate-tech startup developing technology to generate drinking water from atmospheric moisture using renewable energy, positioned as an alternative water sourcing solution in water-stressed regions.**
- **Arghya Water Technologies promotes circular water systems, including greywater reuse, wastewater recycling, and closed-loop water recovery for households and industries.**
- **Bosan Whitewater is a startup working with BWSSB on pilot wastewater purification/recycling technology, helping convert treated sewage into reusable industrial-grade water.**
- **Biome Environmental Trust works extensively on rainwater harvesting, groundwater recharge, wastewater guidelines, policy advocacy, and urban water resilience.**
- **GOLET, or Guardians of Lakes / Guardians of Lakes Ecosystem Trust, is a citizen-led initiative focused on lake restoration, rejuvenation, and lake conservation awareness in Bengaluru.**
- **Environment Support Group is an environmental advocacy organisation involved in urban ecology, lake protection, wetland conservation, and environmental governance.**
- **The Bangalore Environment Trust works on urban environmental sustainability, including water and green space conservation.**
- **Ashoka Trust For Research In Ecology And The Environment (ATREE) is a research institute heavily involved in urban ecology, watershed studies, groundwater, and sustainability policy.**
- **Indian Water Works Association (IWWA, Bangalore Centre) is a professional body working on water management, water engineering, and knowledge-sharing across the sector.**