# Bengaluru’s lake network under threat: tackling water scarcity and urban flooding



Bengaluru, once renowned as the City of Lakes, is currently experiencing severe challenges related to water scarcity and urban flooding, primarily due to the degradation of its historic network of lakes. These lakes, historically vital for rainwater storage, flood control, aquifer replenishment, and supporting livelihoods such as farming and fishing, have largely been compromised because of rapid urbanisation, encroachment, and governance failures.

Historically, during the 16th century under Kempegowda’s rule, Bengaluru’s lakes formed a well-planned and interconnected irrigation system aligned with the region’s natural valleys—including Hebbal, Koramangala-Challaghatta, Vrishabhavathi, and Arkavathi. This cascading arrangement, connected by channels and stormwater drains known as rajakaluve, played a critical role in managing water resources and underpinning socio-cultural activities. Local communities actively maintained these water bodies, overseeing canal upkeep, desilting, and fishing. However, when the British assumed control in the 1700s, the lakes lost their informal community governance and cultural importance, making way for developmental pressures.

By the mid-20th century, the number of lakes dwindled significantly—from approximately 280 in 1961 to just 183 remaining by the 2020s. This decline accelerated due to increasing urban expansion, with many lakes and their floodplains being built over by government and private infrastructure. For example, floodplains and stormwater channels of Nagavara Lake were developed into the Manyata Tech Park, and Kalasipalya Lake’s former bed is now a commercial area. Similarly, landmarks like the Kempegowda Bus Station and Sri Kanteerava Stadium occupy what was once the Dharmambuddhi Lake, while parts of Cubbon Park, the Karnataka Golf Association’s golf course, and the Indian Space Research Organisation headquarters stand on former lake beds.

Senior Hydrologist Shashank Palur from WELL Labs highlighted the impact of encroachments on flooding, noting that stormwater drains, originally sited at natural low points in the valleys, have been obstructed or built over. He explained, “Stormwater drains were placed at the lowest elevations in the valleys. They were encroached or built over, but the water will still flow that way, causing floods.” Today, government and private encroachments have affected nearly 235 acres of lake land, underlining the scale of the disruption.

Governance issues have compounded the problem. The Lake Development Authority (LDA), established in 2002, struggled with limited resources and resorted to public-private partnerships that encouraged commercial activities such as boating and amusement parks. These practices often led to the degradation and pollution of lakes, reduced public access, and excluded traditional users, sparking public opposition and legal challenges. Following a series of institutional changes, including the dissolution of the Karnataka Lake Conservation and Development Authority, lake governance remains fragmented.

Notably, lease agreements such as the one for Nagavara Lake’s redevelopment into Lumbini Gardens were terminated due to environmental violations, and similar reclamations occurred at Hebbal Lake after harm to bird habitats was discovered. Legal directives have sought to protect stormwater drains and maintain buffer zones around lakes; however, enforcement has been weak, and urban development continues to encroach on lakebeds.

Currently, 85% of Bengaluru’s remaining lakes are classified as severely polluted. Disconnection from inflow channels, untreated sewage discharge, and alteration of natural water flows have compromised their capacity to support ecosystems, human use, and flood management. Ramprasad Dasa, co-founder of the citizen group Friends of Lakes, stated, “Their main function needs to be groundwater recharge, flood mitigation, and rainwater harvesting,” adding that many lakes have turned into “sewage filled” bodies incapable of fulfilling their original roles.

Scientific research underscores the urgency of the situation. The Indian Institute of Science’s 2023 report on Bengaluru’s groundwater outlook forecasts acute water scarcity in 80 wards by 2025, especially where reliance on borewells and water tankers is high, disproportionately affecting poorer communities.

Rejuvenation efforts have seen mixed results. While community-led interventions and NGO campaigns have helped restore some lakes like Kaikondrahalli, Jakkur, and Puttenahalli, many projects lack scientific rigour or long-term sustainability. Palur criticises “the unscientific way of lake rejuvenation being carried out by private agencies and CSR groups,” which often neglect sound engineering practices and do not consider the lake’s specific hydrological needs. For instance, a CSR-led project rejuvenating Yarandahalli Lake in 2022 failed to ensure proper inlet and outlet design, causing overflow into residential neighbourhoods. Similarly, a section of Subbarayanakere Lake’s bund collapsed in 2022 due to unsuitable design and inadequate stormwater infrastructure.

In response, technological tools such as the Rajakaluve Encroachment Finder and the Bengaluru Lake Information System (BLIS), developed by IISc, provide important data on encroachments, water quality, and ecological health to support conservation efforts.

Experts advocate for holistic and participatory approaches, which include removing encroachments, restoring hydrological connectivity, preserving floodplains, promoting native vegetation, preventing sewage pollution, and reinstating buffer zones. Dasa emphasises the importance of collaboration, saying, “When there is a mechanism of citizen-led lake groups, the government needs to collaborate and engage with them, so that the citizens can be the actual caretakers of the lakes. Participatory governance is extremely important in this context.”

Bengaluru stands at a critical juncture. Its ability to ensure water security, climate resilience, and social equity depends on strengthening governance, upgrading infrastructure, and fostering multi-stakeholder cooperation to revive and maintain the city’s lakes and water systems. Palur highlights the need for systemic reform: “We need proper groundwater mapping and systems to reduce dependence on groundwater. To be more equitable, the existing infrastructure and technology need an overhaul, as does the water pricing strategy.” Without such coordinated efforts, Bengaluru faces the prospect of ongoing water scarcity and increased vulnerability to flooding, compounded by unsustainable reliance on external water sources and tankers.

Source: [Noah Wire Services](https://www.noahwire.com)

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