

Lake chains, snatched away

For centuries, the City's lakes remained connected, the linked ecosystem of wetlands and streams aiding a natural flow. But a disastrous mix of skewed lake development and real estate encroachments has severely disrupted this process even on the City's outskirts.

Lake connectivity was once Bengaluru's pride, its time-tested pillar of water self-sustainability. Designed in cascades from higher to lower elevations, the lakes allowed excess water to flow from one water body to the next along a natural gradient. But development destroyed this system in the City's core and massacred the linking wetlands. Do the lakes on the city's periphery now stand a chance?

The signs are bleak, the telling instance of the Yele Mallappa Shetty lake near Hoskote sliced into by the Old Madras Road offering no such hope. Satellite imagery clearly shows this water body's organic connection to the distant Hebbal lake. From Hebbal to Nagavara to Kalkere to Maragondanahalli, the link runs to the Mallaappa Shetty lake, only to be disrupted by a highway.

The link was already broken on the wetlands of Nagavara lake, a system that had ensured a natural flow of water for centuries. Obviously, the land developers had no clue or inclination to sustain a system

that acted as reservoirs to impound rainwater, store it for future use and recharge the ground water.

For the record, the city's topography has given it three main valley systems: Hebbal, Koramangala-Challaghatta and Krishnabhatti, along each of which the lakes have formed a chain of reservoirs. Cascading streams link the chain. In the city's core, stormwater drains have replaced these streams. Severely encroached and fed with sewage, the drains run into lakes, first polluting them and eventually killing the water bodies.

Devastation in the periphery

In the City's periphery, this model of destruction is being replicated with devastating effect. As Umesh R, a landlord in Kadugodi explains in chilling detail, the streams and wetlands sustaining the lakes are getting filled up fast. "Mud excavated for large apartment complexes are dumped into these low-lying spots. The flow has stopped. The water table has sunk from 140 feet a few years ago to more than 1,000 feet now."

Threatened ecosystem of Lakes & Streams

■ Wetlands were acquired and developed to make way for tech parks, such as the one near Nagavara lake



Dharmambudhi, from a water tank to a bus station

Dharmambudhi tank / lake was once a major water body opposite the city railway station, right at the spot where the BMTC and KSRTC bus stations are now located. It was once the most critical water source for people in the old city's Pete region. The tank was connected to all open wells nearby, to small tanks, and to small lakes a few kilometres away and was the cleanest source of drinking water. So what happened to it?

"This tank, more than a 100 years old, would re-charge all the tanks and lakes around it. The existence of channels and pathways for water to circulate to different locations in the city reveals the water management plans even then were brilliant. The engineering sense you get from the all-round connectivity is a reflection of capabilities at the time. The landscape now is completely different and so are the sensibilities," says environmentalist and civil engineering expert Yellappa Reddy.

The tank used to serve essential tasks of the day such as bathing, washing vessels, conducting pujas, cooking and drinking. The water was said to be so pure that people would collect it directly

from the wells and percolation tanks connected to the lake. The recharging of water by the lake indicates its importance as a crucial ecosystem in the early days of colonial Bengaluru. "We had good technical people even then. For those times, the system that they devised to distribute water to other tanks and lakes was good. Due to development and rise in population, the lake began to shrink gradually," recalls Reddy.

According to S Srinivas, a blogger, in 1877 when famine struck the Mysore state, the government took up the desilting work of the Dharmambudhi tank to provide jobs. In the process, the tank's

supply channels were repaired, leading to increased supply of good drinking water to the inhabitants of the city.

Lack of maintenance in the subsequent years led to shrinking of water in the tank. During 1892-93, when monsoons failed, Bengaluru witnessed water shortage. The government pumped water from the springs in the Jakkayanna tank valley into the Dharmambudhi tank. Also about 23,20,000 gallons of water was pumped from the tank from the Hebbal tank. Says Srinivas, "The term pumping here probably meant to let water flow from one tank to another via channels through gravity. In this case, it was probably from Hebbal tank to Sankey tank and from there to Dharmambudhi tank via Jakkayanna-kere (the present BBMP playground on Platform Road). From 1896 onwards, Bengaluru town was supplied with piped water from the Hesarghatta reservoir. This made the municipality neglect maintenance of the Dharmambudhi tank, which became completely dry."

When water supply completely dried up, Dharmambudhi tank bed became a hub of public meetings. "In 1931, Jawaharlal Nehru addressed a meeting here and hoisted the tricolour. Exhibitions and shows were also held here at regular intervals. In 1963, the government handed over 1,36,294 square yards of land of the Dharmambudhi tank bed to KSRTC to construct a bus stand," informs Srinivas.

G Krishnaprasad, a long-time resident of Seshadripuram and a frequent visitor to the lake in the 1950s, agrees that the lake area was transformed into a public space when it could no longer meet Bengaluru's drinking water needs. "I remember going to see the circus and exhibitions at one corner of the tank. The circus, in particular, was the most important entertainment for people of Bengaluru 40-50 years back. I also remember people playing cricket. There was a small bus stand too, from where around 30-40 buses would operate. All this was possible because the lake was drying up. The question then was what do we do with the open space? While there was a lake, some part of it which was dry would be utilised for entertainment purposes and public activity." The transformation then, of the lake into a bus station, soon became permanent.

Encroachment of Varthur lake wetlands follows the same strategy adopted for Bellandur lake. DH PHOTOS/KISHOR KUMAR BOLAR



As many as 72 acres of wetland between the Bellandur and Agara lakes were acquired for a SEZ. BBMP later ordered stoppage of work as it had no approval.



JAGADEESH GIRI
Yelahanka New Town

Lakes are ecologically important as they aid recharging of groundwater. The High Court order banning construction within 30 metres of the lake periphery should be strictly followed.



MUNISWAMAPPA
Resident, Bellandur

In the last six decades that I have been staying near the Bellandur lake, I've seen it get systematically destroyed. Farmers once relied on it for irrigation. You can't even get close now.



UMESH R
Landlord, Kadugodi

Mud excavated during construction of apartment complexes are dumped into the wetlands and streams that link the lakes. The natural flow has stopped. The water table has sunk dramatically.



SUDHIRA H S
Researcher, Gubbi Labs

Tanks and lakes should be reimaged as collectors, a consequence of various small streams. They cannot be seen in isolation and revived only for recreational and aesthetic purposes.

that temporary and even permanent-looking residential and business establishments have emerged here. Multi-storey residential complexes have risen on the beds of both Bellandur and Varthur lakes on the City's periphery.

In May 2013, a study by the Centre for Ecological Sciences, IISc, had concluded that the SEZ around Bellandur lake will trigger demands for about 4.58 million litres of water per day, bring in 14,000 vehicles, besides leading to irreversible damages to the surrounding ecosystem. Topographical alterations in the lake's vicinity, the study found, will also increase the potential for flooding.

But rescuing lakes and wetlands from just the real estate developers will not suffice, reason ecologists. Lakes cannot be rejuvenated by cutting off the inlets and remodelled only for recreational and aesthetic purposes. The renovation of Nagavara lake cannot be a model to emulate. Explains H S Sudhira, a researcher from Gubbi Labs, "The City's water bodies need to be reimagined. We should see lakes/tanks as collectors of water, a consequence of various small streams. They cannot be seen in isolation."

This thinking is yet to percolate down to lake developers even in the new BBMP areas. Take, for instance, the Halangayakanahalli lake on the downstream of the Bellandur lake, and off Sarjapur Road. As Dr Rohan D'Souza from the Ashoka Trust for Research in Ecology and the Environment (ATREE) points out, the village panchayat that controlled the lake of over 40 hectares focused only on beautification. "They aren't looking at lake connectivity, but only on superficial aesthetics. This won't help the water body."

Need to reimagine

If in the past, tanks and lakes fulfilled the roles of storage and washing, they need to be reimaged as drinking water sources today, says Sudhira. "By covering the drains, and resorting to what we call 'stream burial,' the BBMP is cutting off supply of oxygen from direct sunlight." This aids methane formation in the drains, and also cuts off rainwater. The flow to the lakes is disrupted yet again.

The LDA model too is skewed, adds D'Souza. "The conversion of linear bunds to ring bunds leads to minimal overflow of lake water into the wetlands. This hastens the process of lakes becoming standalone bodies," he elaborates. The Rachenahalli lake's apparent revival by this model might just be short-lived. The message is clear: A lake just cannot survive without its surrounding ecosystem and natural linkages to water bodies downstream. A model that ignores this has no business to be there.

Rasheed Kappan

Another lake committee, another hope

Five reports on lake encroachments in 10 years, and not a single person behind bars. If this shows how seriously the government acts against lake killers, here's another point to ponder: Yet another Legislative Committee set up to prepare a report on encroachment of water bodies will meet for the first time on November 12.

Headed by K B Koliwad, the Ranebenur MLA, and comprising 10 other MLAs as members, the committee is expected to invite suggestions from wetland experts and others who were part of earlier such panels. Lake conservationists are hopeful that at least this time, the report will lead to some action against the encroachers.

In recent years, the encroachments have reached dangerous proportions, with the unchecked growth of residential and commercial buildings on lakes and wetlands hitherto demarcated as no-go zones.



Dharmambudhi lake in 1975. DH PHOTO ARCHIVES



Kempegowda KSRTC/Subhashnagar BMTC bus station at the lake site today.

Prashanth G N