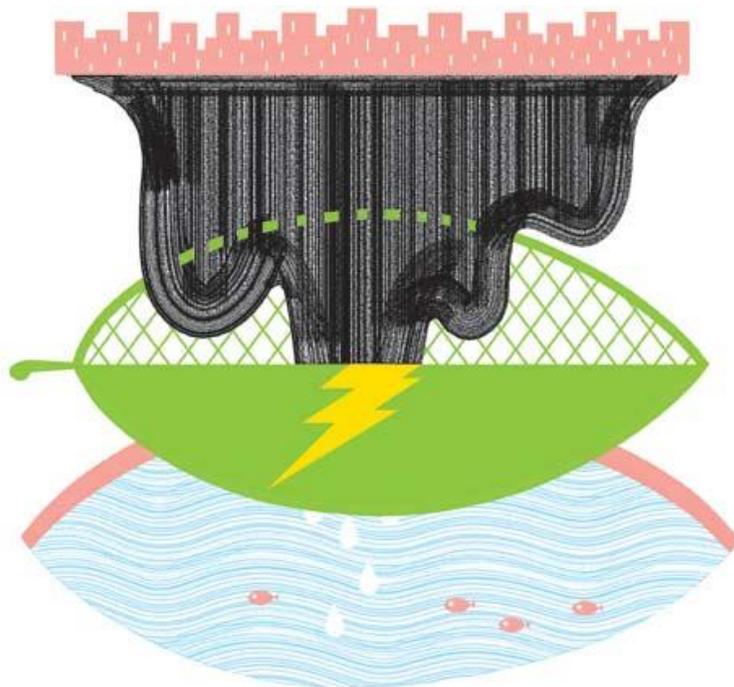


Cities at Crossroads: Who pays to save this lake?

Bengaluru waterbody, Jakkur, restored by a citizen's initiative, now stands to be deprived of water by a power plant, raising questions about making environmentally sound practices economically viable.



There are no easy answers. The power plant needs water to function and is willing to pay. (Illustration: CR Sasikumar)

My last column dealt with the restoration of Kaikondrahalli lake in Bengaluru ([‘Bring back the lakes,’](#) IE, April 25), the city which was once known for its thousand lakes. Citizen involvement was a big part of the story. I had pointed out that the Bruhat Bengaluru Mahanagar Palike (BBMP) had worked closely with the community not only in designing the infrastructure for the restoration of the lake but also in laying down pipelines for sewage or wastewater to bypass the lake. The restoration happened before all sewage and effluents that were dumped into the lake could be treated, and the management of the rejuvenated lake was entrusted to a citizens’ group called MAPSAS. A sustainable solution for restoring the lake would be found only when all wastewater could be treated before entering the lake and stormwater drains would no longer act as sewers.

This column is about the story of the transformation of Jakkur lake in Bengaluru, which started earlier (in 2005) and seemed to have a strong sustainable design. In this case, BWSSB

(Bengaluru Water Supply and Sewerage Board) built a sewage treatment plant (STP), and the Bengaluru Development Authority built adjacent wetlands such that the treated water would pass through the wetlands, and be then released into the lake. However, this environmentally-sustainable arrangement is likely to be disrupted because a soon to be commissioned gas-based combined cycle power plant in Yelahanka needs water to make steam and for cooling. The power plant has paid for the upgradation of the STP and is willing to pay for the treated water, and BWSSB seems keen to garner the extra revenue. This case raises a number of important issues in the planning and management of our cities, including inadequate attention to financial considerations.

Jakkur lake, located in the northeastern part of the city, is one of the largest lakes (1.5 km long, covering 160 acres) of Bengaluru. It is the main lake in the chain of lakes comprising the Yelahanka lake upstream and the Rachenhallilake downstream. Three storm water drains starting from Yelahanka, Agrahara, and Shivanalli used to feed the lake.

As urbanisation gathered momentum, with rapid economic growth since the 1990s, changes in land-use pattern combined with encroachments resulted in numerous residential complexes coming up around the lake. Over the years, domestic sewage and garbage, effluent discharge, illegal sand mining, all took their toll on the scenic freshwater lake until it slowly turned into a dump for the city's waste.

In 2005, BDA developed physical infrastructure around the lake to prevent waste from being dumped there. At the same time, BWSSB built a Sewage Treatment Plant (STP) of 10 million litres per day (MLD) capacity for treatment of wastewater in the northern corner of the lake.

Based on inputs from environmental experts including T V Ramachandra of the Indian Institute of Science, Bangalore, wetlands were created with aquatic plants and an algae pond (spread across 11 acres) adjacent to the lake. In the system as designed, the STP receives wastewater from the neighbouring areas and releases seven to eight MLD of treated water into the wetlands. The natural vegetation in the wetlands absorbs excess nutrients still present in the treated water, and the resulting filtered water then enters the lake. Wetlands thereby serve as kidneys for the landscape by absorbing nutrients and pathogens in the effluent.

Desilting of the lake, construction of bunds, artificial islands for migratory birds, pathways around the lake and its fencing, a separate kalyani for idol immersion, and other such works were all carried out by BDA in consultation with the community. Annapurna Kamath, managing trustee of Satya Foundation, an NGO working in the area of community development, was the force behind getting the community organised to work with the various departments of the government.

By 2011, there were encouraging reports about the improved water quality in the lake and a significant increase in the fish catch. The groundwater situation also improved with a rise in the water table, which resulted in filling the bore wells and old open wells in the area, and water from the recharged wells in the vicinity was used to meet drinking water needs of the nearby villages.

Maintaining any lake is a continuous job and, in some ways even more difficult than restoring it. Keeping sewage out, particularly in the rainy season, is a major challenge. Similarly, to prevent municipal solid waste, medical waste, or farm waste from being dumped in the lake, it is necessary to have continuous vigilance and quick intervention. There is also need for routine harvesting of the wetlands. At the same time, ensuring access to the lake for the fishing community, water to peri-urban areas, and leisure activities for the public involves balancing the interests of different stakeholders.

Recognising that community had to be part of the solution, BBMP decided to entrust the maintenance of Jakkur lake to the community. A citizens' collective, JalaPoshan Trust was formed to take up the responsibility, together with Satya Foundation. Again, Annapurna Kamath played a crucial role in bringing volunteers to come forth and work to nurture their common facility. With a view to enhancing the biodiversity of the area, JalaPoshan organised Vanamahotsava in 2015 to encourage citizens to plant saplings and contribute to their maintenance. The challenges remain both of funding and of physical maintenance and safeguarding what has been achieved. Already, there are studies indicating some deterioration in water quality. But overall it has been a story of sensible environmental planning. That is until the power plant came along.

The power plant is being built by the Karnataka Power Corporation Ltd (KPCL) at Yelahanka at a cost of Rs 1,561 crore and is expected to generate 370 MW of electricity. The old STP is being upgraded to 15 MLD capacity and the upgradation has been funded by KPCL at a cost of Rs 58 crore. The power plant will pay BWSSB for buying 10 MLD of treated water, which seemingly improves the financial position of BWSSB. But it will reduce the flow of treated water to Jakkur lake from 7 to 8 MLD to at most 5 MLD. This will jeopardise the much lauded rejuvenation, and the success story of the past 10 years may come undone. Experts say the lake needs at least 7 MLD.

There are no easy answers. The power plant needs water to function and is willing to pay. BWSSB is attracted by a new revenue source. But there is a trade off here for BWSSB between selling treated water for power production and groundwater recharge through the lake. If the ground water was not available in the area, BWSSB will have to transport Cauvery water at three times the cost of what it receives by selling treated water to the power plant. We need to find a workable solution to deal with cases such as Jakkur lake. One possible win-win solution is that the power plant should arrange to re-circulate as much as possible by directing the water back to the lake after ensuring that it has cooled down. This should form part of their conditions to attain environmental (EIA) clearance.

Water is going to be an increasingly scarce commodity that will command a price in the market. A major challenge going ahead will be how to make sure that environmentally sound practices are also financially viable.