POINT BLANK

Bellandur's industrial woes

Industrial pollutants have always been the biggest problem for Bellandur & Varthur lakes. But it took a strict ruling by the National Green Tribunal to spur the govt into action. It could not have come without sustained studies by stakeholders

The Koramangala-Challaghatta Valley (KC Valley) comprising Bellandur and Varthur lakes, has a catchment of 290.44 sq km and eventually drains into the Dakshina Pinakini river. Due to various challenges linked to human settlements, 37.5% of lakes in this region disappeared between 1970 and 2016.

The number of lakes fell from 132 interconnected lakes in the 1970s to 96 last year. Of these, 46 are now in Bellandur lake catchment area and 50 lakes are connected to Varthur lake. The interconnected system consists of the lake series of Hulimavu, Puttenahalli, Halasuru, Kaikondrahalli, Kaggadasapura, Gunjuru-Chikka Bellandur, Kundalahalli and Nallurahalli.

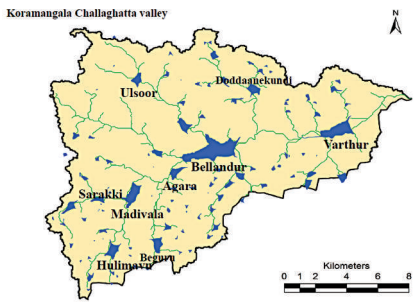
Feeding the Bellandur water body is the lake series of Halasuru, Hulimavu, Sarakki, Beguru, Ambilipura, Kaikondrahalli and Doddanekundi.

To revive Bellandur lake, the Jakkur lake model is often cited by the scientific community. The model involves an integrated wetlands ecosystem. Here, a secondary treatment plant is integrated with constructed wetlands and algae pond.

Nutrients and chemical contaminants in the water are removed when the secondary treated sewage passes through the constructed wetlands and algae pond, and undergoes bio-physical and chemical processes. In effect, the lake water becomes potable with minimal nutrients and microbial counts.

Studies on wells in the lake's buffer zone of 500 metres showed higher water levels and zero nutrients. Besides, the groundwater assessed was found to be clean.

However, in recent times, the lake has faced fresh challenges as the constructed wetlands were not working efficiently. But even if this is sorted out, a power plant coming up in Yelahanka could potentially threaten the lake's ecosystem that depends on high volumes of treated sewage water.



LETTERS pointblank@deccanherald.co.in

Instead of just closing down the industries, the Karnataka State Pollution Control Board should conduct a "waste audit" of all the industries. Once they comply with the standards and regulations, they can allow the industries to operate.

The industries could be issued technical guidelines on waste water and emissions, and saved from closure. This should be effective on all industries in Karnataka.

BWSSB should strictly implement the sewage treatment procedure for apartments. The Board should reserve stormwater drains only for rainwater and treated water from apartments and industries.

Jagadish M
Environmental consultant

All those industries which have been discharging their effluents into Bellandur lake must pay for cleaning the lake. In addition, stiff penalty should be imposed on the BBMP officials who allowed this to happen.

Vinod Kumar Sagar

It is the connivance of the industries and the authorities that is responsible for this sorry state of affairs. One could see foaming at Varthur lake as early as in 1985. The authorities concerned need to be blamed for lack of planning and allowing industries and layouts to come up without a scheme for disposal of effluents.

M S Sharada Prasad

For years, the pollution control officials were in denial mode: Domestic sewage, and not industrial effluents was what caused Bellandur lake's decay, they declared. Going after polluting apartments was then their obvious response. But could the real big polluters, the industries big and small, get away so fast?

The National Green Tribunal (NGT)'s inspection of the lake offered the scientific community an opportunity for some course correction. Armed with telling lake sample study reports, they exposed how the deadly concoction of chemicals let out by industries had wrought unimaginable damage to the water body.

The extent of that chemical destruction convinced the Tribunal of the urgent need to arrest the decay. Its recent ruling, mandating the closure of all polluting industries in the lake's vicinity, was a direct result of that scientific mediation.

Rejuvenation blueprint

The critical role played by industrial effluents in the foam and froth formation has been reinforced by a blueprint on the rejuvenation of the Bellandur and Varthur lakes, released recently by Dr T V Ramachandra and team from the Centre for Ecological Studies, Indian Institute of Science.

The blueprint notes that the loading of Phosphates in the lakes has led to nutrient enrichment for the cyano-bacterial blooms and macrophytes (aquatic plants). But surfactants such as sodium or ammonium laurets, found in huge quantities are equally responsible.

Industrial surfactants

Here's the industrial linkage: "Surfactants are used by many industries as wetting agents, dispersants, defoamers, deinkers, antistatic agents, and in paint and protective coatings, pesticides, leather processing, plastics and elastomer manufacturing, and oil extraction and production," says the blueprint.

So, how does the frothing happen? "A portion of phosphates is up-taken by aquatic plants while the balance gets trapped in the sediments. Premonsoon showers coupled with gusty winds lead to the churning of lake water with upwelling of sediments. Vigorous mixing of surface water coupled with high flow across narrow channels leads to bubble formation that persist and build up as foam."

Hydrocarbons

If the foam and frothing attracted nationwide media attention, the sight of fire on the lake sparked a public outcry. The blueprint had an explanation for the fire, again from an industrial perspective. It says: "Foam caught fire due to compounds with high flammability i.e. hydrocarbons and organic polymers that came from nearby industries in the vicinity of Bellandur lake."

The implication was clear: Discharge of untreated effluents, rich in hydrocarbons, had sparked the accidental fire. The culprits were hundreds of micro, small and medium-scale industrial units related to garments, dyeing, leather tanning, laundry and automobile maintenance including garages.

KSPCB role

The Karnataka State Pollution Control Board (KSPCB) has been blamed for letting these industries go scotfree by not strictly monitoring their emissions. How did the industrial units manage to get the required licences in the first place, ask lake activists and environmentalists.

If NGT has found the industries guilty, the next logical step would be to identify them and close them down. But there is a problem of vicinity. Locating hundreds of such units would be a tough task.

A vocal critic of the existing system, Bellandur resident Nagesh Aras had proposed crowd-sourcing the location of these industries besides garbage/construction debris dumping sites.

Bellandur lake receives about 447 Milliion Litres Daily (MLD) of untreated sewage, almost 40% of what the entire city generates in a day. As Aras points out, restricting the action on industries located within a kilometre or two around Bellandur lake will not make much impact.

The high use of phosphates in detergents for washing at an industrial scale has also been cited as a key factor in the foaming and frothing. Studies have shown that although use of detergents is going up unregulated, facilities for recovery of detergent constituents and treatment are extremely scarce.

Laws ignored

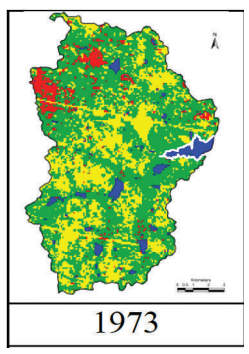
The Environment Protection Law of 1989 had stressed on the implications of detergents as a potential chemical pollutant on the surface and various receiving waters. Yet, they are being used relentlessly. Reports suggest a 1.5 fold decadal growth in the use of detergents.

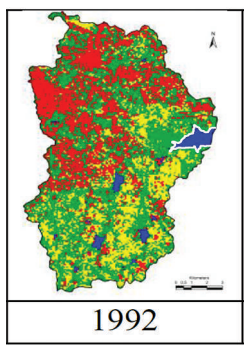
Most laundry detergents are phosphate-based, as there are no norms, control or regulation of phosphates use, resulting in deterioration of receiving waters.

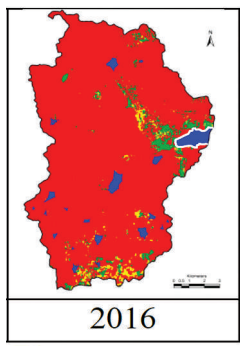
The implications of unregulated heavy metal contamination of the waters of Bellandur and Varthur lakes are there for all to see. Vegetables grown around the Varthur lake have been found to be highly contaminated. Regardless of their source, they find their way to big markets in Whitefield, Marathahalli, HAL, Hoodi and other areas.

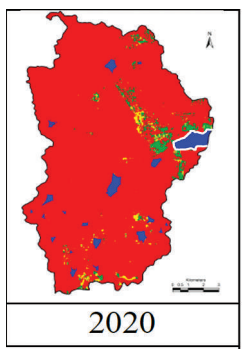
There is even more danger in the grass grown alongside the water hyacinth nourished by the polluted nutrients. The grass is collected as fodder and sold in truckloads to various cattle sheds. Local people engaged in this task claim they are sold to even dairy farms in Koramangala and Shivajinagar. The city's milk distribution chain could well be compromised.

Rasheed Kappan



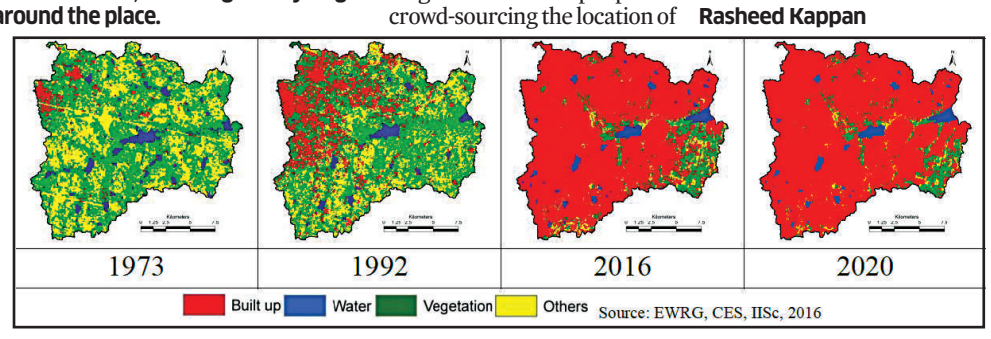






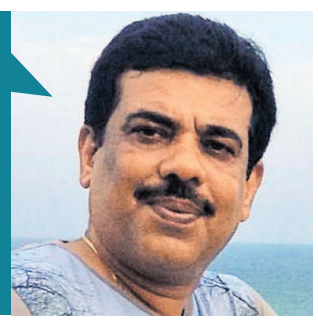
KSPCB has issued notices to many factories in the Bellandur catchment area, including this dyeing unit in Mangammanapalya. The unit's proprietor, Rafi, shows around the place.

Built-up area in Bellandur catchment area (shown in red) increased from 5.4% (1973) to 92.3% (2016) with the decline in vegetation cover (58.0% to 4.1%), water bodies (4.3% to 1.4%) and other (open lands, agriculture) land uses (32.3% to 2.1%). About 94% of the catchment would be concretised by 2020.



BIBUTI PANDA
Lake volunteer

Awareness is not yielding any results. Poor implementation of regulatory norms is the main reason for such a disaster. More volunteers should join hands with the stakeholders.



SONALI SINGH
Resident, Whitefield

STPs should be channelised meticulously so that the load reduces on the downstream lakes. Apartment complexes should have guidelines not to let waste water directly into lakes.

SRINI JASTI
Resident, HSR Layout

The view from my apartment complex is only of white thick foam flying in the air, spreading a bad odour in the locality. The toxic foam has been taking a toll on the health of people.