

A new report evaluates the status of natural spaces in Bengaluru and recommends strategies to help conserve and maintain the city's rich flora and fauna

# Status of garden city's BIODIVERSITY

Over the past decade, Bengaluru has been the city of environmental protests. From citizens protesting the felling of trees for projects such as road widening and constructing bridges to Bangalore University hostel girls taking to the streets in May after facing water shortage, the city's depleting green and blue spaces have been a cause of constant worry. Now, a new report emphasises the urgency of conservation efforts.

The report, City Biodiversity Index - Bengaluru, funded by Bengaluru Sustainability Forum and developed by ICLEI-Local Governments for Sustainability, South Asia and The University of Trans-Disciplinary Health Sciences and Technology (TDU), aims to shed light on where the city's biodiversity stands, its health and how it can be improved.

"There is a massive difference between the presence of green and blue spaces in the city and a healthy ecosystem. This report focuses on the latter," says Monalisa Sen, co-author of the study and senior programme coordinator (Biodiversity), ICLEI.

The City Biodiversity Index (CBI) or Singapore Index, developed in 2008 and used in Bengaluru for the first time, shows that the city's scores are below average in almost half of the indicators. The report analysed data for one year from April 2023. The findings were made public on September 9.

"This is the first round, so the scores provide an idea of what works and what does not. It could be a guide for improvements," Sen says.

The report lists Bengaluru's parks and the city's flora and fauna. The information was sourced from scientific publications, government reports, white papers, and citizen science platforms like eBird and iNaturalist.

## 'Garden City' lacks tree cover

For long, Bengaluru has been called India's 'garden city'. However, the scattered, reducing green spaces, as seen in ICLEI's Natural Assets Map, part of the report, show that this reputation might no longer hold.

Only about 13% of the core city's total area of 717.13 sq km comes under natural, naturalised, and restored areas. The tree cover is just 14.7%, and the accessible tree cover is restricted to public green spaces, including parks like Cubbon Park, Lal Bagh and some reserve forests.

Most of the green spaces in the city are either inaccessible or partially accessible, as they are within institutional areas like university campuses and military and defence establishments, the report highlights. Some of these green spaces are poor in diversity.

"The lack of tree cover is very evident. Some gardens are lawns with no tree cover, so they don't provide ecosystem service or benefits. The green cover map shows very low levels of greenery, which needs to be urgently addressed," says Sen.

One problem green spaces face is the lack of native plant species compared to invasive alien species. The study identified 26 invasive species last year and 309 native species. "Even among the roadside trees, the native species are very few," Sen points out.

The researchers call for a local study of invasive species and their risk assessment to understand their impact on local ecosystems.



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## 'Committee functional'

Bodies such as the Karnataka Forest Department, Bangalore Development Authority (BDA), Bruhat Bengaluru Mahanagara Palike (BBMP), Bengaluru Smart City Limited (BenSCL), and Karnataka Lake Conservation and Development Authority (KLCDA) are responsible for maintaining the city's blue-green spaces and conserving biodiversity.

BBMP has a functional Biodiversity Management Committee headed by the Deputy Conservator of Forests (DCF), B L G Swamy, DCF, said the committee members visit various areas in the city and prepare reports. The committee lists areas to be marked as conservation zones and conducts various activities among the public. It has also devised a plan to convert landfills around Bengaluru into biodiversity hotspots, he told DH.

## Blue spaces at risk

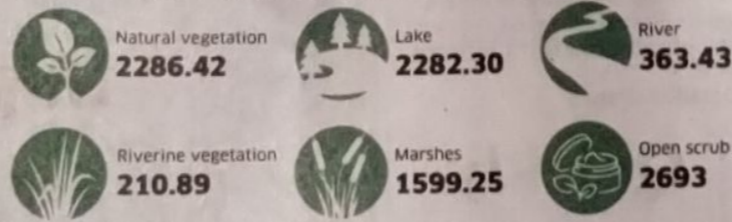
This year's summer hit people with the reality of the city's acute water crisis. Some studies estimate that Bengaluru will run out of water by 2025. This doesn't seem far-fetched, as a May 2024 report showed that 125 lakes in the city have dried up, and 25 more are at risk.

Sen points out that the concretisation of the city is a major factor in these woes. Most of the areas in Bruhat Bengaluru Mahanagara Palike (BBMP) limits are impervious, as drawn by ICLEI in the new report—through which water



DH FILE PHOTO/ BK JANARDHAN

## Proportion of natural areas in Bengaluru (inside BBMP boundary - figures in hectares)



SOURCE: CITY BIODIVERSITY INDEX - BENGALURU

cannot pass. Importantly, data on permeable and non-permeable spaces at the city level is absent.

"We developed the permeable areas map for the report to show how few and scattered they are. They are not well connected. The natural spaces, whether blue or green, need to be connected for the fauna to flourish. Butterflies, moths, insects, and lizards move only when you have connected spaces," Sen explains.

The researchers also found that construction is happening close to some lakes, and water is being taken from

them. This stresses the ecosystems in a city facing water scarcity. Sen stated that such issues need to be looked into as a priority.

Currently, Bengaluru's lakes are in poor health, the study points out. For instance, Raja Kaluve's (storm water drains) are streams that join the Dakshina Pinakini River in Bengaluru East. However, these have been concretized and are filled with sewage. Meanwhile, Mitaganahalli Lake, which is next to a quarry, is now a dump yard for Construction and Demolition (C&D), plas-

tic and other waste, the report points out. This lake is especially at risk from the pollutants filling the area as it is used as a landfill.

The fragmentation of vegetation patches has also increased across the city. This can be especially seen in the city's avenue plantations and parks, which are now focusing on quick-growing, small canopied, shorter ornamental trees or its wetlands, which are being used as sewers or recreational spaces for joggers instead of more traditional services such as water provisioning, fishing, and small-scale irrigation.

The city scored 36 out of 72 across the 18 indicators, showing abundant room and need for improvements.

## Many calls for action

Bengaluru does not have a Local Biodiversity Strategy and Action Plan (LBSAP). According to ICLEI, this is a crucial tool for local governments to implement biodiversity and conservation. An LBSAP helps identify fragile ecosystems, understand their health risks, and how the city can address them.

Nobody is studying the health of green and blue spaces, Sen says. "If we do not ecologically restore them, we will just create artificial water bodies," she adds. The concretisation of lakes is a major threat to the city's ecosystem.

A main recommendation is for Bengaluru to urgently restore its urban green spaces with native species to regain a healthy level of ecosystem services, including flood protection and negating the heat island effect.

The study suggests nature-based solutions such as floating wetlands and constructed wetlands can be used to improve the health of the wetlands. Moreover, since the fragmentation of natural landscapes is extensive, the study recommends diversification of green spaces, "especially outside its core area to improve corridors for birds visiting the city," the report recommends.

The report suggests significant measures such as rainwater harvesting, removing paved surfaces in parks and gardens, and restoring rivers to improve permeability. It says avoiding concrete pavers and using pervious pavement materials could improve water percolation and movement. Bengaluru has many scientific institutions from which help can be taken, Sen adds.

Although BBMP has spent Rs 284.26 crore from its budget on biodiversity, it lacks collaborative efforts to implement improvements. "There needs to be more collaborations between the BBMP, the NGOs, civic bodies, and scientific communities to use the huge budget so that the city's biodiversity benefits," Sen says. This can help the combined efforts yield a bigger impact.

While much awareness generation and community mobilisation are needed to strengthen the biodiversity conservation movement, citizen ownership plays a key role in its success. The focus must be on public ownership of blue and green spaces and their conservation. Revitalising these spaces is not just for recreation but to improve the ecosystem—something that people are yet to realise, Sen adds.

## List of protected areas in BBMP limits

Forest	Area
Jarakabande Sandal Reserve	444 acres 12 guntas
Govindapura plantation	48 acres
Kallupalya SF	107 acres 25 guntas
Madappanahalli plantation	153 acres 39 guntas
Jarakabande A-Block	371 acres
Jarakabande B-Block	123 acres
Peenya & Jalahalli Plantation	599 acres
Machohalli	145 acres 12 guntas
Turahalli MF	597 acres 19 guntas
Turahalli SF	514 acres 29 guntas
BM Kaval	1382 acres 18 guntas
Sulikere SF	525 acres 2 guntas
Basavanatara	1417 acres
Kenchenahalli	77 acres
Nagarabhavi Extension Plantation	234 acres 1 guntas
Nagarabhavi Plantation	250 acres
Doresanipalaya Lac Reserve	137 acres 3 guntas
Uttarahalli Manavarthe Kaval	167 acres 15 guntas
Marasandra	855 acres 10 guntas

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