

City of burning lakes: experts fear Bangalore will be uninhabitable by 2025

The illegal dumping of waste mixed with mass untreated sewage in India's Silicon Valley is creating a water crisis which threatens residents' health - and is causing the city's famous lakes to catch fire



Bellandur lake, the city's largest body of water covered in a thick layer of vegetation, burned for hours on the evening of 16 February 2017. Photograph: Aaditya Sood

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Deepa Bhasthi in Bangalore

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On the evening of Thursday 16 February, residents in the south-east part of Bangalore noticed huge plumes of smoke rising into the sky. The smoke was coming from the middle of Bellandur Lake - the biggest lake in the city at a little over 890 acres. They realised the seemingly impossible had happened: the lake had caught fire. Even fire fighters wondered how a blaze in water could be put out.

The fire in the lake burned for 12 hours and left behind a sinister black patch in the centre, according to some eye-witness accounts.

This is the new story of Bangalore - state capital, India's Silicon Valley, and once upon a time, the "city of lakes". The reasons why these lakes are able to catch fire begin to explain why scientists at the influential Indian Institute of Science believe Bangalore will be "unliveable" in a few years' time.

A lethal mix of factors create an environment that merely requires the slightest of triggers for lakes to go up in flames. Untreated effluents pour into the waters from the many industries and homes on its banks, illegal waste disposal takes place on a large scale - often including rubbish which is set on fire - and invasive weeds cover large swathes of the lake in a thick green canopy.

The latest incident is not the first time the lake has caught fire; it happened in May 2015. A few days later, it was in the news again for being covered in snow-like froth, which began to swirl up in the summer wind, engulfing passers-by. The froth was the result of chemical waste dumped in the lake, and was toxic enough to crack windshields, wear the paint off car hoods and exacerbate the severe respiratory issues that have plagued citizens in recent years.



Pedestrians cross a bridge over a frothing canal leading to Bellandur Lake in 2015. Photograph: Manjunath Kiran/AFP/Getty Images

Dr TV Ramachandra, coordinator of the Energy and Wetlands Research Group at the Indian Institute of Science (IISc), has been studying the lakes in Bangalore, especially Bellandur and Varthur, for over two decades. He explains that an estimated 400-600 million litres of untreated sewage is let into the lake catchment every day, creating a toxic environment fertile for disasters like the fires and foam.

"The city overall generates between 1,400 and 1,600m litres per day of untreated sewage," he says. "20-30m litres per day is generated from the apartments in the vicinity of Bellandur Lake. There are several invasive species like water hyacinths growing in the lake, thick enough to walk on. People dump solid waste on top of it. Because of the thickness, it creates an anaerobic environment in the water below, where methane is formed. It creates an ideal environment for catching fire."

He believes there are too many agencies governing the lake, so they all blame each other for such incidents. "The Bangalore water supply and sewerage board should be held responsible for letting the untreated sewage into the water," he says, adding that the onus should also be

placed on the Karnataka state pollution control board for not regulating industries that have been draining their untreated sewage into the lake.

Although the Water (Prevention and Control of Pollution) Act and The Air (Prevention and Control of Pollution) Act require action to be taken over such matters, the government has mostly remained silent, while its departments have been passing the buck around. The National Green Tribunal has issued notices to all the agencies involved.

Long before it began its slow and painful death, Bellandur Lake was part of a clever water and irrigation system devised by the founders of Bangalore in the 1600s, giving it the “city of lakes” moniker. The streams formed at the top of surrounding valleys were dammed into man-made lakes by constructing bunds. Each of these lakes would harvest rainwater from its catchments and the surplus would flow downstream, spilling into the next lake in the cascade via storm water drains or *raja kaluves*. The bodies of water would in turn serve the needs of the population.



A woman walks past contaminated water at a landfill on the outskirts of Bangalore. Photograph: Jagadeesg Nv/EPA

In the 1970s, there were still 285 lakes in the city, making it self-sufficient in its water needs. Today, however, there are just 194 lakes, and the large majority of them are sewage-fed. The rest have been lost to encroachments - by the Bangalore Development Authority, private real estate developers and illegal builders - to cater to the booming housing needs of a city of 10 million.

Bangalore has been subject to unchecked urbanisation in the wake of the IT sector-fuelled economic boom of the late 1990s. The many software companies that sprung up during the dotcom boom attracted hundreds of thousands of skilled IT professionals from across the country, with thousands more people moving from villages and small towns to the city in search of work.

According to studies by the IISc, rapid urbanisation and expansion between 1973 and 2016 caused a 1005% increase in paved surfaces and decline of 88% in the city’s vegetation, while water bodies declined by 85% between 2000 and 2014.

The rise of the IT sector has also created the problem of e-waste in the city: a 2013 report estimated that Bangalore produces 20,000 tonnes of e-waste per year. Although a formal recycling system for e-waste was set up, 90% of it is dealt with through the informal sector, which is harder to monitor. Unaware of the necessary safety measures, some incinerate the

e-waste, releasing lead, mercury and other toxins into the air - and dump the rest, allowing pollutants to infiltrate the groundwater.



Dead fish washed up on the banks of Ulsoor Lake in 2016.
Photograph: Jagadeesg Nv/EPA

If one lake habitually catches fire, then another throws up thousands of dead fish every other summer. Ulsoor Lake, which doubles up as a picnic spot with boat rides and snack vendors on its banks, saw dead fish floating on its waters last year owing to the pollution caused by untreated sewage and consequent depletion of dissolved oxygen.

The water pollution in Bangalore poses a serious threat to residents' health and creates a chronic shortage of clean water for people to use. All in all, experts predict a severe water crisis which will make Bangalore uninhabitable by 2025, with residents potentially having to be evacuated.

In the aftermath of the latest fire, I spoke to Aaditya Sood, an IT professional who watched the flames from his 10th floor balcony. He said he had seen the lake being "choked" in the seven or eight years he has lived there. "I have two kids and respiratory issues are a problem," he says. The toxins from the lake get into the air, according to Ramachandra, noting that the cases of lung-related medical conditions have increased drastically in the city recently.

Another resident, Vandana Sinha, who works for a consultancy firm, says the smoke from the fire almost immediately caused itchiness at the base of her throat. She had heard that seven to eight trucks worth of garbage was being dumped into the lake every night, adding to the lethal combination of pollutants in the waters.

Report after report by expert committees have recommended several short and long term measures for rescuing the city's lakes. Stopping the dumping of garbage, treating sewage water before it is allowed into the lakes, checking encroachments and slowing the development agenda are top of the list.

In the next three years, if the same rate of development continues, the built up area in Bangalore is expected to increase from 77% to 93%, with a vegetation cover of a mere 3%. Ramachandra is determined to get the bureaucracy to act before it is too late. While the city may not fully cease to exist, without drastic improvement the other possibilities still sound impossibly grim.

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