

# Air Pollution in Bengaluru

## CITY FACTSHEET



Healthy air. Healthy climate.

## The Problem

Air pollution is a major health risk in India. According to the Lancet Planetary Health, one in eight deaths in India are due to poor air quality and exposure to ultra-fine particulate matter<sup>i</sup>. But compared to the capital Delhi and cities in Northern India, the air pollution crisis in Bengaluru has not been in the spotlight. Cases of child asthma, upper respiratory infections, chronic pulmonary disease, as well as heart attacks in young people are increasing.

Once known as the “Garden City”, Bengaluru has seen profound changes in recent years, with a decline in green spaces and tree cover (leading to a rise in temperature from reflected heat), a dramatic increase in vehicles, along with intensive construction activity and unpaved roads.

Bengaluru is the second fastest-growing major metropolis in India, and has the highest population density in the state of Karnataka.

The sources of air pollution in the city, unlike that of Delhi, are not ‘regional’, but ‘local’<sup>ii</sup>. Key sources of city air pollution include transport, waste burning and road dust, with transport accounting for the biggest share of around 60-70%<sup>iii</sup>.

There are more than 8 million two wheelers, cars, taxis, and buses on Bengaluru’s roads (80 lakhs<sup>iv</sup>). Nearly 1,800 vehicles are being registered every day<sup>v</sup>.

Major amounts of hazardous air pollutants are also being released through waste burning and construction activities. It is estimated that Bengaluru generates around 4,500-5,000 tons of waste per day, which the antiquated system of waste collection, segregation and transportation fails to manage safely<sup>vi</sup>.

Health professionals have witnessed a rise in diseases related to air pollution, including child asthma, chronic pulmonary disease and heart attacks in under 40 year olds.

Doctors at the Jayadeva Institute of Cardiovascular Sciences and Lakeside Hospital have seen an alarming rise in heart problems in the under 40 age group and a 25% rise in asthma cases in children in the under 14 age group<sup>vii</sup>. Cardiologists and pulmonologists indicate that the rising air pollution levels are most likely responsible for the increase in disease burden among the city’s population.

However, a comprehensive health impact assessment of air pollution has not been carried out as there is no systematic and comprehensive gathering of data. The data available from official monitoring sites already shows that concentrations of particulate matter are well above what is deemed healthy by the World Health Organization<sup>viii</sup>.



## Air Quality Monitoring

Unlike the cities in the North of India, the key sources of unhealthy air in Bengaluru are localized and include transport, waste burning, construction and unpaved roads<sup>ix</sup>. Furthermore, a significant amount of the city's population travel on foot, by two-wheelers and three-wheelers resulting in their exposure to high levels of air pollution.

The monitoring system in place by the Karnataka State Pollution Control Board only consists of 10 online monitoring stations generating data in real-time, 27/4, which is inadequate for a city of such size.

This system is not able to record data in all pollution hotspots in the city<sup>x</sup>, and does not capture the exposure of the population effectively since air quality monitors are frequently placed at height rather than walking level and so does not reflect the exposure that people face. There is also no possibility to record an individual's exposure when moving around the city e.g. while commuting.

In response to these concerns, Bengaluru residents have carried out monitoring of air pollution with mobile devices, and have found alarmingly high pollution levels.

Initiatives included monitoring the air over a 7 day period, for peak times at selected transport intersections. The results are not directly comparable to official monitoring data, as the time frame was shorter<sup>xi</sup>.

However, the averages observed over four-hour auto rides carried out in two parts consistently generated averages above 200  $\mu\text{g}/\text{m}^3$  PM<sub>2.5</sub>, which indicates that very poor air quality levels prevail for several hours every day owing to traffic congestion<sup>xii</sup>.



## The Solutions

Tackling emissions at their source is key to addressing Bengaluru's air pollution crisis.

Health professionals have a leading role to play in addressing transport, the primary source of pollution in the city. There are many measures that are a win-win for our health, air quality and the climate. This includes stricter pollution standards for vehicles, stricter policies on parking, pollution control checks and incentivizing public transport along with the promotion of cleaner modes of transport. Bengaluru has taken steps in this direction by joining WHO's BreatheLIFE campaign with commitments to city-wide solutions for clean air. This includes plans to expand the reach of metro services, stricter emission and fuel standards, introduction of e-buses and a cycling lane.

In addition, increased air monitoring is needed so that research on health impacts can be undertaken. A comprehensive monitoring system is needed that will record air quality at pollution hotspots, with a particular focus on the exposure of those groups that are most at risk from pollution. Having robust data will enable health experts to determine the burden of disease from air pollution in the city.

Air monitoring and health impact assessment can also provide guidance for determining the best measures for clean air.

Unlike many other cities in India, Bengaluru has a vibrant civil society that is informed and is concerned about the health of the environment in the city. Furthermore, the sources of pollution in the city are local and can be tackled with sustained, collaborative activities.

### • Action

We invite health professionals, affected individuals and local organisations working to protect environmental resources to join the Healthy Air Coalition and get involved for clean air in Bengaluru. The Coalition will be running a network of 40 real time air quality monitors to increase the evidence base on air pollution and health impacts.

[www.healthyaircoalition.org](http://www.healthyaircoalition.org)



Healthy air. Healthy climate.

[www.unmaskmycity.org](http://www.unmaskmycity.org)

#UnmaskMyCity

**Unmask My City** is a global initiative by doctors, nurses, public health practitioners, and allied healthcare professionals dedicated to improving air quality and reducing emissions in our cities.

This will save millions of lives, improve health outcomes for billions of people, and make a huge contribution to greenhouse gas reductions needed to keep the world safe from climate change crises.



Global Unmask My City partners



<https://www.facebook.com/HEAL/>



<https://twitter.com/HealthandEnv>

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<sup>i</sup> <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2818%2930261-4>

ii UrbanEmissions APna city programme

<http://www.urbanemissions.info/india-apna/bengaluru-india/>

<sup>iii</sup> <http://www.indiaenvironmentportal.org.in/content/374071/proceedings-of-the-workshop-on-air-quality-aq-monitoring-modeling-and-assessment-workshop-on-22nd-march-2013/>

<sup>iv</sup> <https://timesofindia.indiatimes.com/city/bengaluru/karnataka-has-2-crore-vehicles-bengaluru-choked-with-76-lakh/articleshow/66021773.cms>

<sup>v</sup> Report Bengaluru's rising air quality crisis, 2017

<http://opencity.in/documents/bengaluru-rising-air-quality-crisis-by-aishwarya-sudhir>

<sup>vi</sup> <https://www.omicsonline.org/open-access/solid-waste-management-in-bengalurucurrent-scenario-and-futurechallenges-.php?aid=78824>

<sup>vii</sup> Report Bengaluru's rising air quality crisis, 2017, Sudhir

<sup>viii</sup> [https://www.who.int/phe/health\\_topics/outdoorair/outdoorair\\_agg/en/](https://www.who.int/phe/health_topics/outdoorair/outdoorair_agg/en/)

<sup>ix</sup> <https://www.thehindu.com/news/cities/bangalore/bengalurus-vehicle-population-crosses-80-lakh/article26705015.ece>

<sup>x</sup> The Urban Emissions info on Bengaluru concluded in 2016 that the city required "at least 41 continuous air monitoring stations to statistically, spatially, and temporally, represent the mix of sources and range of pollution in the city" <http://www.urbanemissions.info/india-apna/bengaluru-india/>

<sup>xi</sup> Report by Citizens Matters and Climate Trends:

<http://bengaluru.citizenmatters.in/bangalore-air-pollution-above-safe-limits-23220>

<sup>xii</sup> [Ibid.](#)