



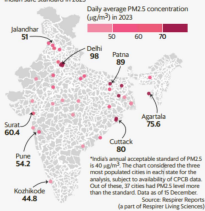
# India's smaller cities, too, face threat of pollution

BY NANDITA VENKATESAN

The problem isn't limited to metro cities or a select few northern states. A large number of Tier-II and Tier-III cities in India have air pollution that goes past the safe limit, an analysis of official data shows.

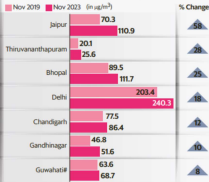
## Beyond Delhi: A look at how air pollution panned out in India this year

Major Indian cities where PM2.5 levels have exceeded the Indian safe standard in 2023\*



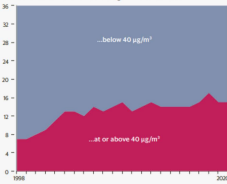
## Jaipur, Bhopal among cities with sharpest rise in air pollution

State capitals with biggest % increase in PM2.5, Nov 2019 vs Nov 2023\*



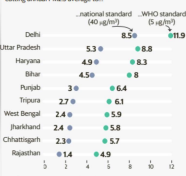
## Air pollution has gradually spread its tentacles all over India

Number of states with an annual average PM2.5 concentration...



## An average Delhiite will gain 8+ years in life from breathing better air

Number of years of life expectancy gained from cutting annual PM2.5 average to...



For northern India, winter is when poor air quality rules the headlines. In Delhi, pollution reaches nearly 100 times the global safe limit, leading to eye-watering smog, taking it to the list of the most polluted cities globally. But while bad air may come across as a metro-city problem for much of the year, and a north-Indian problem in early winter, that's only the tip of the iceberg, data shows.

Last month, when pre-Diwali rain partly insulated Delhi's vulnerable air from the fireworks, some of the most polluted locations in India the morning after the festivities were in Bihar and Odisha, far away from the glitz of metros, data from the Central Pollution Control Board (CPCB) showed. But Diwali was just one example: in many non-metro cities, the average daily level of the PM2.5 pollutant through the year exceeds the safe zone. (PM2.5 is fine particulate matter that can penetrate the lung barrier and enter the blood system.)

An analysis of the three biggest cities in each state (mostly Tier-II and Tier-III cities) confirms this. Out of 54 such cities with available data, 37 have averaged PM2.5 levels above India's safe standard of 40 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) in 2023 so far, showed the analysis shared by Respiro Living Sciences, a climate tech startup that tracks official air quality data. (The World Health Organization, or WHO, uses a much stricter safe PM2.5 limit of  $5 \mu\text{g}/\text{m}^3$ ),

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of the grim air quality and its harmful effects, nor has the government paid due attention to them."

### The culprits

Open burning of waste and biomass, barren land, road dust, untrammelled construction, rapid urbanization and rising vehicle density are the major villains in small-town India. Newer pollutants such as oxides of nitrogen are adding to the threat, as is India's rapid construction and infrastructure boom. Tier-II cities such as Kochi, Ahmedabad, Chandigarh, Coimbatore, Jaipur, Lucknow and Nagpur are seeing an uptick in real estate demand especially after the pandemic, according to Anarock Research. The fallout? A rise in dust pollution, with authorities unprepared to address this risk.

True, the period of crop stubble burning in early winter affects states such as Haryana, Delhi and western Uttar Pradesh acutely. But even otherwise, pollution is a far bigger issue in the entire area occupied by the Indo-Gangetic plains, than it is in southern states. This can largely be attributed to a basin-like topography in the plains that can trap pollutants for an extended period of time, said Abhishek Kar, senior programme lead at the Council on Energy, Environment and Water, a public policy think-tank. Coastal cities benefit from the regular sea breeze that aids pollutant dispersion, he said.

### Health impact

Having a bulk of India exposed to unsafe air quality is a public health threat. Inhaling unhealthy air is linked to a host of diseases such as ischaemic heart disease, chronic obstructive pulmonary disease, lung cancer and pneumonia, according to the WHO. New research published in the *British Medical Journal* earlier this year showed that exposure to fine particulate matter (PM2.5) increased the risk of developing type-2 diabetes in two different Indian cities.

A 2021 study from the University of Chicago also stated that if Delhi cut its PM2.5 pollution to meet WHO's limit, an average resident would live nearly 12 years longer. In Uttar Pradesh, the gain would be of nine years, and in Bihar, eight years. Phrases such as "air emergency" and "toxic hell" may have been overused to little avail in large cities, but it may be time to raise the alarm elsewhere too. [nandita.venkatesan@livemint.com](mailto:nandita.venkatesan@livemint.com)

### The hotspots

While Delhi and Gurugram were the most polluted, next on the list was Patna ( $89 \mu\text{g}/\text{m}^3$ ). Bhopalpur in Bihar ( $81.4 \mu\text{g}/\text{m}^3$ ), Cuttack in Odisha ( $80 \mu\text{g}/\text{m}^3$ ) and Dhanbad in Jharkhand ( $72.1 \mu\text{g}/\text{m}^3$ ) also had high pollution. For 12 cities, including Ludhiana, Coimbatore, Chandigarh, and Nagpur, November 2023 had more PM2.5 exposure than November 2019, Respiro's analysis showed. Out of the 15 state capitals with available data, seven saw higher PM2.5 levels last month than in November 2019.

"Megacities have attracted the attention of scientific communities from the viewpoint of research and data collection, and of government bodies to take control measures," Ranjit Kumar Sinha, an environmentalist who tracks air quality in Agra, where he is assistant professor of chemistry at Dayalbagh Educational Institute, said. "The situation in smaller cities will worsen in the next few years as neither are their residents aware