

Micro-pollution ravaging China and South Asia: study

February 25 2020, by Marlowe Hood



Last year, 117 of the 200 most polluted cities in the world were in China

Nearly 90 percent of the 200 cities beset by the world's highest levels of deadly micro-pollution are in China and India, with most of the rest in Pakistan and Indonesia, researchers reported Tuesday.

Taking population into account, Bangladesh emerged as the country with the worst so-called PM2.5 [pollution](#), followed by Pakistan, Mongolia, Afghanistan and India, according to the 2019 World Air Quality Report, jointly released by IQAir Group and Greenpeace.

China ranks 11th.

Particulate matter of 2.5 microns or less in diameter—roughly 1/30 the width of a human hair—is the most dangerous type of airborne pollution.

Microscopic flecks are small enough to enter the bloodstream via the respiratory system, leading to asthma, lung cancer and [heart disease](#).

Among the world's megacities of 10 million or more people, the most PM2.5-toxic in 2019 was the Indian capital New Delhi, followed by Lahore in Pakistan, Dhaka in Bangladesh, Kolkata in India, Linyi and Tianjin in China, and Jakarta, Indonesia.

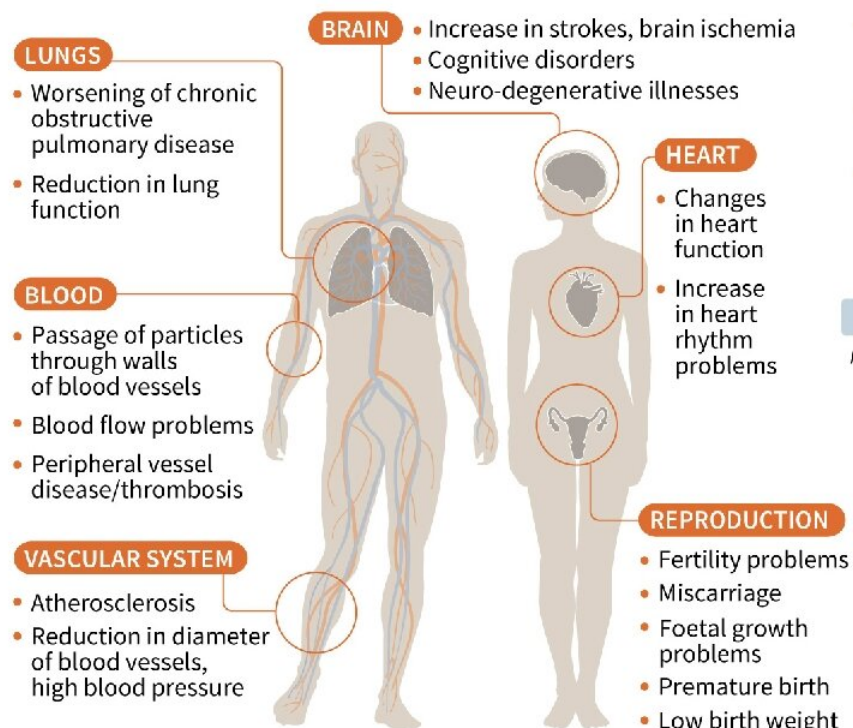
Next on the list were Wuhan—epicentre of the new coronavirus outbreak—along with Chengdu and Beijing.

The IQAir report is based on data from nearly 5,000 cities worldwide.

Most of the seven million premature deaths attributed by the World Health Organization (WHO) to air pollution are caused by PM2.5 particles, which originate in sandstorms, agriculture, industry, wildfires and especially the burning of fossil fuels.

Deadly impact of air pollution

How fine particles affect the body

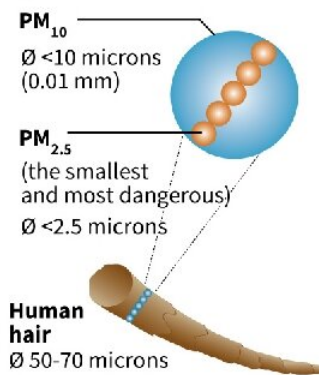


Effects of exercise

- 5 times more pollutants inhaled during moderate exercise than at rest
- Deeper penetration of pollutants into the lungs
- Blood levels of toxins in city runners along busy roads can double after 30 minutes to those of regular smokers

Fine particles

PM = particulate matter



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Sources: French national health agency, INVS, European Environment Agency, QJM

PM_{2.5} pollution is small enough to enter the bloodstream via the respiratory system, leading to asthma, lung cancer and heart disease

"Air pollution is the world's leading environmental health threat," said IQAir CEO Frank Hammes. "Ninety percent of the global population is breathing unsafe air."

China's average urban PM_{2.5} concentration dropped 20 percent in 2018 and 2019, but last year it still counted 117 of the 200 most polluted cities in the world.

All but two percent of China's cities exceeded WHO guidelines for

PM2.5 levels, while 53 percent exceeded less stringent national safety limits.

Less data from Africa

The UN says PM2.5 density should not top 25 microgrammes per cubic metre (25 mcg/m³) of air in any 24-hour period. China has set the bar at 35 mcg/m³.

More than a million [premature deaths](#) in China each year are caused by air pollution, according to the WHO. Recent calculations put the toll at up to twice that figure.

Across a large swathe of northern India and north-central China, meeting WHO standards year-round for PM2.5 pollution would increase life expectancy up to six or seven years, according to the Air Quality Life Index, developed by researchers at the Energy Policy Institute of Chicago.

In India, small particle pollution exceeds WHO limits by 500 percent, even if air pollution in general declined significantly last year, with 98 percent of cities monitored showing improvements.

Among the club of 36 rich OECD nations, South Korea was the most polluted for PM2.5, counting 105 of the worst 1,000 cities on the index. In Europe, Poland and Italy count 39 and 31 cities, respectively, in this tranche.



Indian school children march to raise awareness about air pollution levels in New Delhi

Other parts of the world such as Africa and the Middle East lacked data.

"What cannot be measured cannot be managed," Hammes said. "Africa, a continent of 1.3 billion people, currently has less than 100 monitoring stations that make PM_{2.5} data available to the public in realtime."

As of 2018, China alone had more than 1,000 such stations in 200 cities.

Climate change has begun to amplify the health risk of PM_{2.5} pollution, especially through more intense forest fires and sandstorms made worse by spreading desertification, the report found.

Global warming and PM2.5 also have the same primary driver: the burning of coal, oil and gas.

While the link with [lung cancer](#) was well established, a recent study showed that most excess deaths from air pollution are caused by heart attacks, strokes and other types of cardiovascular disease.

Small and larger particulate matter, [nitrogen dioxide](#) (NO₂), sulphur dioxide (SO₂) and ozone (O₃) have likewise been linked to drops in cognitive performance, labour productivity and educational outcomes.

Of cities with more than one million people, the least affected by PM2.5 are Adelaide, Helsinki, Stockholm, and San Jose in central California, followed by Perth and Melbourne in Australia, and Calgary in Canada, and New York.

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Citation: Micro-pollution ravaging China and South Asia: study (2020, February 25) retrieved 9 April 2024 from <https://phys.org/news/2020-02-micro-pollution-ravaging-china-south-asia.html>

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