

Air quality



15x – Delhi's air more polluted than the WHO safe maximum
4000 – people killed every day in China due to air pollution

Air quality

Rising air pollution in many cities is killing people and becomes a visible catalyst for changing mind-sets and policies across health, energy, transportation and urban design.

Delhi, Patna, Gwalior and Raipur: the four most polluted cities in the world, and all of them in India - 13 of the top 20 most polluted cities are in India. Although Beijing has a worse reputation, with its visible smog formed mostly from 10 micron particulates, Delhi has more of these as well, as many more of the more dangerous smaller sub-2.5 micron ones that kill as they go deeper into the lungs. Delhi's air is 15 times more polluted than the WHO safe maximum.

Whether from vehicle emissions, industrial smokestacks or paraffin stoves in the slums, this pollution is manifested across many Indian cities in escalating asthma rates, higher cancer incidence and more heart attacks and strokes. About 620,000 people dying every year from pollution-related diseases, but they are not alone. Lives in many Chinese cities are over 5 years shorter than the national average because of air pollution - 80 percent of the population are exposed to pollution above safe levels and the air in Beijing is so polluted that breathing it does as much damage to the lungs as smoking 40 cigarettes a day. The omnipresent paper masks of recent years are being replaced by heavy-duty facemasks; parents are even delaying having children because of the poor quality air. Air pollution in China kills about 4,000 people every day - about 17 percent of all deaths. But, according to the World Bank, when measured across whole nations, the most toxic air today is found not in India or China but in the UAE.

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Globally, in 2012, 7m people died because of the impacts of poor air quality and, as increased industrialization, wider car ownership and climate change all add to the problem, things are going to get a lot, lot worse. The OECD believes that pollution will soon become biggest cause of premature death.

A pivotal issue about poor air quality is that it has multiple causal factors and impacts multiple areas. From industrial strategy and energy policy, to vehicle emissions to city design and transportation choices, the forces driving increased pollution intertwine. Equally the health consequences of rising asthma, heart attacks, chronic obstructive pulmonary disease and cancer combine with poor visibility and grey skies to make many of the world's cities increasingly unattractive places to live. The lists of the world's unhealthy cities are increasingly much longer than the healthy ones.

In some Western cities some progress in improving air quality has been made over recent years. The Mayor of London has launched public awareness campaigns aimed at helping Londoners make small changes to reduce their exposure to pollution and help improve air quality. Alongside tightening standards with the city's Low Emission Zone, retiring old taxis, cleaning up the bus fleet and retrofitting 400,000 buildings with clean air facilities, a primary activity to meet 2020 targets is rethinking traffic management. Meanwhile the EU is taking legal action against 17 States with a consistent record of poor air quality. Bulgaria, Latvia and Slovenia are being asked to urgently address an on-going issue that kills more of their citizens than road traffic accidents every year.

Interconnected systems



In the US, outdoor air quality has improved since the 1990s, but, according to the CDC, many challenges remain in protecting Americans from air quality problems. Ground-level ozone, the main part of smog, and particle pollution are just two of the many threats to air quality and public health in the United States and, based on current projections, pollution in the US is set to increase not decrease by 2025.

With public attention rising and concerns over poor health influencing political agendas, now India and China are ramping up their activities. The Chinese government has set up a nationwide network of sensors, and regularly publishes data online. A comparative index has recently been launched in India to monitor air quality, while three industrialised states—Gujarat, Maharashtra and Tamil Nadu—are about to launch the world's first market for trading permits in emissions of particulate matter. In the town of Surat, in Gujarat, 300 textile plants, which typically burn coal to produce steam, are likely to be the first to trade such permits. Monitoring equipment has already gathered emissions data from these and other plants.

Beyond monitoring and permits, others are trying more radical measures. In the western Chinese city of Lanzhou, officially deemed by the WHO to have the worst air in China, officials have proposed digging great gullies into the surrounding mountains in the hope of trapping polluted air in a gigantic landscape gutter. But Lanzhou's poor air quality is caused less by burning coal and car fumes than by the local penchant for blowing up mountains. More than 700 peaks are being leveled to provide swathes of flat land for development and blowing out a huge gulley would only add to the problem.

New approaches to city design are being called for that will gain by encouraging healthier urban dwellers - reduced healthcare costs, increased productivity, more community resilience, improved life expectancy and fewer demands on health services. Given that most people in India, even in cities, still commute by foot, bus or bicycle—and that only 5% of households own cars—India still has time to set up systems for mass public transport before the car becomes king. Already 14 cities have or are building metros.

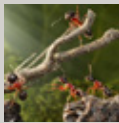
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Most of the world's population will be subject to degraded air quality in 2050 if human-made emissions continue as current trends. The OECD believes that air pollution will become a bigger global killer than dirty water and, as such, is encouraging faster change. The challenge in many countries however is in balancing the public health impact with the desire for sustained economic growth – primarily still powered by fossil fuels. In regions where energy access is a higher priority than clean energy, many are increasingly seeing that it may well be air pollution, and not carbon emission targets, that captures the public sentiment and act as a catalyst for change. More children with asthma, permanently grey skies and increased breathing difficulties for all are seen by some as the triggers for widespread change – both bottom up and top down – and consequently, air quality is fast becoming a core part of the climate change vocabulary.

Air pollution will become a bigger global killer than dirty water.

Related insights

Deeper collaboration



Partnerships shift to become more dynamic, long-term, democratised, multi-party collaborations. Competitor alliances and wider public participation drive regulators to create new legal frameworks for open, empathetic collaboration.

Energy storage



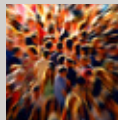
Storage, and particularly electricity storage, is the missing piece in the renewables jigsaw. If solved, it can enable truly distributed solar energy as well as accelerate the electrification of the transport industry.

Intra city collaboration



Increasing competition between cities overrides national boundaries and drives change. They compete to attract the best but also collaborate to avoid the downside of success – over-crowding, under-resourcing and pollution.

Mass engagement



As the public voice becomes easier to access and harder to suppress, leaders seek to engage to create, develop, secure and maintain legitimacy for their initiatives and policies – so further reducing their hierarchical power.