

# STATE OF GLOBAL AIR /2019



**1.2 million deaths** due to air pollution in 2017

**1 year and 11 months' loss in life expectancy at birth** due to air pollution exposure

**53  $\mu\text{g}/\text{m}^3$**  population-weighted average  $\text{PM}_{2.5}$  concentration

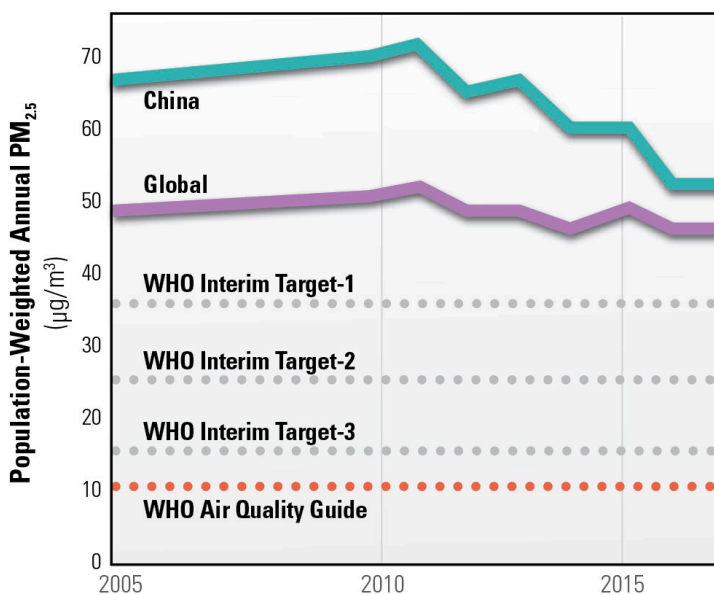
**32% of the population** uses solid fuels

## China

**Air pollution is the 4th leading risk factor for mortality, accounting for almost 12% of deaths (1.2 million) in China in 2017 alone.**

In China, pollution from outdoor particulate matter ( $\text{PM}_{2.5}$ ) has dropped markedly in recent years, after extensive government efforts to control emissions. However, challenges remain. The population-weighted average concentration of  $\text{PM}_{2.5}$  in China still exceeds the World Health Organization's least-stringent air quality interim target of  $35 \mu\text{g}/\text{m}^3$ . A separate analysis of air quality and related health impacts in 74 Chinese cities recently found that annual average  $\text{PM}_{2.5}$  concentrations fell by one-third from 2013–2017, a significant achievement (see State of Global Air 2019 report for details).

*Progress in China  $\text{PM}_{2.5}$  levels relative to WHO Guideline and Interim Targets.*



Also, the proportion of households cooking with solid fuels fell from 61% in 2005 (782 million) to 32% (452 million) in 2017, largely due to aggressive efforts to reduce household burning of coal for cooking and heating. The government banned the use of coal for household cooking and heating in municipalities around Beijing in favor of a switch to natural gas. The effort stemmed from the emissions benchmarks established in China's Air Pollution Prevention and Control Action Plan, issued in 2013. Although households represent a relatively small proportion of China's overall coal use, in-home coal stoves lack the filtering systems used by coal-fired power plants, making homes an important contributor to coal-related emissions.

*(Continued on page 2)*



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The State of Global Air website is a collaboration between the Health Effects Institute and the Institute for Health Metrics and Evaluation, with expert input from the University of British Columbia



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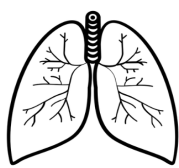
## China (Continued from page 1).

While there are signs of progress, population-weighted ozone concentrations have been increasing slowly but steadily. These trends reflect a combination of factors, including increased emissions of ozone precursors (such as nitrogen oxides, methane, and non-methane volatile organic compounds, among other chemicals) with industrialization and economic development, coupled with warmer temperatures, especially at mid-latitudes.

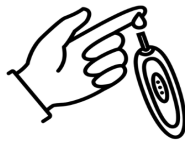
The entire Chinese population lives in areas where

PM<sub>2.5</sub> concentrations exceed the WHO Air Quality Guideline of 10 µg/m<sup>3</sup>. Twenty percent of the population lives in areas with PM<sub>2.5</sub> above the WHO's least-stringent target of 35 µg/m<sup>3</sup>. Air pollution exposures, including exposure to outdoor PM<sub>2.5</sub> and household air pollution (HAP), have been linked to increased hospitalizations, disability, and early death from respiratory diseases, heart disease, stroke, lung cancer, and diabetes. Exposure to ambient ozone is linked to COPD.

### Percentage of deaths by cause attributed to air pollution in China.



**45 percent**  
of COPD deaths



**21 percent**  
of diabetes deaths



**17 percent**  
of ischemic heart disease deaths



**26 percent**  
of lung cancer deaths



**12 percent**  
of stroke deaths

In 2017, 851,700 deaths were due to exposure to outdoor PM<sub>2.5</sub>, and 271,100 deaths were due to exposure to HAP. Exposure to outdoor PM<sub>2.5</sub> accounted for the loss of 1 year and 3 months in life expectancy, and exposure to HAP accounted for a loss of 8 months.

Overall, while China's air pollution is still worse than that experienced on average across the globe, the improvements seen in recent years bring significant benefits to China's population and underscore the potential for air quality management efforts to rapidly and substantially improve air quality both in China and around the world.

### ADDITIONAL RESOURCES

Cheng H, Zhang W, Wang Q, Wan W, Du X. 2018. Breakthroughs: China's Path to Clean Air 2013-2017. Pasig City, Philippines:Clean Air Asia. Available: [http://www.allaboutair.cn/uploads/soft/181114/Breakthroughs\\_ChinasPathtoCleanAir2013-2017.pdf](http://www.allaboutair.cn/uploads/soft/181114/Breakthroughs_ChinasPathtoCleanAir2013-2017.pdf) [accessed 22 March 2019].

GBD MAPS Working Group. 2016. Burden of Disease Attributable to Coal-Burning and Other Major Sources of Air Pollution in China. Special Report 20. Boston, MA:Health Effects Institute

Huang J, Pan X, Guo X, Li G. 2018. Health Impact of China's Air Pollution Prevention and Control Action Plan: An analysis of national air quality monitoring and mortality data. *Lancet Planetary Health* 2:e313–e323; doi:10.1016/S2542-5196(18)30141-4.



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