

Forum: World Health Organization (WHO)

Issue: Responding to the rise of non-communicable diseases linked to urban air pollution in China

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TOPIC INTRODUCTION

Noncommunicable diseases (NCDs) account for the majority of deaths on the planet. The World Health Organization (WHO) estimated 43 million such deaths in 2021, and that is about three of every four deaths in the world, disregarding the pandemic.¹ They are long-term conditions, like heart disease, stroke, cancer, chronic lung illnesses, and diabetes. In China, noncommunicable diseases account for about 91% of all deaths.²

A major factor is the quality of air people are exposed to. During the last decade, many Chinese cities were among the most polluted in the world. However, in January 2013, Beijing was deemed an “airpocalypse” when haze was so dense that monitoring stations could no longer reliably measure pollution levels.³ Particles are inhaled into the lungs, enter the bloodstream and consequently increase the risks of heart attacks, stroke, lung cancer, and chronic obstructive pulmonary disease with long-term exposure. According to the World Health Organization, air pollution is now the second leading risk factor associated with causing non-communicable diseases.⁴

For more than a decade, China has been engaged in a campaign to combat air pollution with demonstrable success. The concentration of fine particulate matter has been reduced by nearly half since the beginning in 2013.⁵ However, many cities still exceed safe levels; health

¹ “Noncommunicable Diseases.” *World Health Organization*, 25 Sept. 2025, www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed 10 July 2026.

² World Health Organization. “Cause of Death, by Non-Communicable Diseases (% of Total)—China.” *World Bank Open Data*, World Bank, data.worldbank.org/indicator/SH.DTH.NCOM.ZS. Accessed 10 July 2026.

³ Ferreri, Joshua M., et al. “The January 2013 Beijing ‘Airpocalypse’ and Its Acute Effects on Emergency and Outpatient Visits at a Beijing Hospital.” *Air Quality, Atmosphere & Health*, vol. 11, 2018, pp. 301–309, <https://link.springer.com/article/10.1007/s11869-017-0538-0>.

⁴ “Ambient (Outdoor) Air Pollution.” *World Health Organization*, 24 Oct. 2024, [www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](http://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health). Accessed 10 July 2026.

⁵ Miao, Yuanlu, et al. “Understanding the Dynamics of PM2.5 Concentration Levels in China: A Comprehensive Study of Spatio-Temporal Patterns, Driving Factors, and Implications for Environmental Sustainability.” *Sustainability*, vol. 17, no. 4, 2025, article 1742, <https://doi.org/10.3390/su17041742>.

effects will continue for years, and in 2023 the national average PM rose slightly for the first time in a decade.⁶ Thus, there was an initial burst of progress and then it halted.

The key question now is how can the World Health Organization (WHO) and its member states help countries reduce pollution-related disease faster. WHO defines health-based limits, its role is in health policy rather than environmental policy and does not have the mandate to make countries shut down plants or change energy policies. However, it can establish safe limits for the environment, communicate evidence regarding health impacts and collaborate with countries on developing health systems to identify and treat disease. It is crucial to facilitate shared targets among countries and ensure that the committee's recommendations are effective not only for China today, but also for countries likely to face similar pollution challenges in the future.

DEFINITION OF KEY TERMS

Air pollution

"Air pollution is the release into the atmosphere of various gases, finely divided solids, or finely dispersed liquid aerosols at rates that exceed the natural capacity of the environment to dissipate and dilute or absorb them." It thus creates serious health concerns when breathed in by humans and has been proven to be one of the leading causes of NCDs.⁷

Ambient air pollution

"Ambient (outdoor) air pollution is pollution that is present at concentrations that affect human health, ecosystems and agriculture. It is primarily measured through the presence of particulate matter (PM10 and PM2.5), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide in the air. Ambient air pollution is one of the leading environmental risk factors affecting urban and rural populations around the world, resulting in an estimated 4.2 million premature deaths in 2019 (WHO, 2024)." These were mostly caused by NCDs, which have been proven to be caused by air pollution.⁸

Disability-adjusted life year (DALY)

"The burden of disease is calculated using the disability-adjusted life year (DALY). One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of years of life lost due to premature mortality (YLLs) and years of healthy life lost due to disability (YLDs) due to prevalent cases of the disease or health condition in a

⁶ Qiu, Chengcheng. "PM2.5 Rebounds in China in 2023, after Falling for 10 Years Straight." *Centre for Research on Energy and Clean Air*, 22 Dec. 2023, energyandcleanair.org/pm2-5-rebounds-in-china-in-2023-after-falling-for-10-years-straight/. Accessed 10 Aug. 2026.

⁷ Stevenson, Robert J., and Jerald L. Schnoor. "Air Pollution." *Encyclopaedia Britannica*, www.britannica.com/science/air-pollution. Accessed 10 July 2026.

⁸ "Ambient (Outdoor) Air Pollution (EN0103)." *United Nations Office for Disaster Risk Reduction*, www.undrr.org/understanding-disaster-risk/terminology/hips/en0103. Accessed 10 July 2026.

population.” In simpler words, a DALY is a measure used to show how much healthy life is lost because of illness, disability or early death. In the context of air pollution in China, DALYs help measure the overall health impact of pollution-related noncommunicable diseases by combining the years people lose through premature death with the years they live in poorer health because of disease.⁹

Noncommunicable disease (NCD)

“Noncommunicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors.” Noncommunicable diseases are illnesses that are not passed from person to person. They include conditions such as cardiovascular disease, cancer, diabetes and chronic respiratory diseases.¹⁰

Particulate matter (PM2.5 and PM10)

“PM stands for particulate matter (also called particle pollution): the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope.” Particle pollution includes PM2.5 and PM10, which represent different particle-size categories.¹¹

WHO Air Quality Guidelines (AQG)

“The World Health Organization’s Air quality guidelines (AQG) serve as a global target for national, regional and city governments to work towards improving their citizen’s health by reducing air pollution.” The WHO Air Quality Guidelines are recommendations, which set safe levels for major air pollutants, such as PM2.5, PM10, ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. They help national, regional and local governments create policies and targets to reduce air pollution and protect public health.¹²

BACKGROUND INFORMATION

The effect of air pollution on health

Environmental pollution and health issues should not be treated as separate issues. When polluted air is inhaled, tiny particles from the air will penetrate the airways of the lungs. The tiniest

⁹ World Health Organization. “Global Health Estimates: Leading Causes of DALYs.” *Global Health Observatory*, [w.particulateswww.who.int/data/gho/data/themes/mortality-and-global-health-estimates/global-health-estimates-leading-causes-of-dalys](https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/global-health-estimates-leading-causes-of-dalys). Accessed 10 July 2026.

¹⁰ “Noncommunicable Diseases.” *World Health Organization*, 25 Sept. 2025, www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed 10 July 2026.

¹¹ “Particulate Matter (PM) Basics.” *United States Environmental Protection Agency*, 21 May 2026, www.epa.gov/pm-pollution/particulate-matter-pm-basics. Accessed 10 July 2026.

¹² “What Are the WHO Air Quality Guidelines?” *World Health Organization*, 22 Sept. 2021, www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines. Accessed 10 July 2026.

of these particles are small enough to enter the bloodstream and stimulate inflammation and erode the walls of blood vessels.¹³ Over time, blood vessels become stiffer, blood pressure increases, and blood clots are more likely to occur, which leads to heart attacks. The same small particles that damage the blood vessels can also cause lung scarring and may also carry chemicals with them, which damage the DNA and lead to lung cancer.¹⁴

Indoor and outdoor air pollution together are associated with approximately 6.7 million deaths each year, around 5.6 million of which are caused by NCDs.¹⁵ The State of Global Air estimated that air pollution contributed to 8.1 million deaths globally in 2021, with particulate matter identified as the leading environmental risk factor for mortality.¹⁶ According to WHO, meeting the first interim target everywhere would save approximately 300,000 lives per year.¹⁷

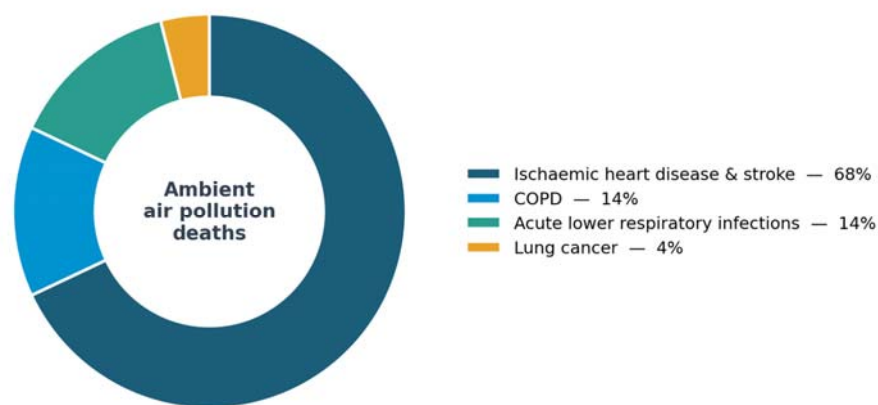


Figure 1: Share of outdoor air-pollution deaths by cause, worldwide (WHO, 2019).

The case of China

¹³ "Particulate Matter (PM) Basics." *United States Environmental Protection Agency*, 21 May 2026, www.epa.gov/pm-pollution/particulate-matter-pm-basics. Accessed 10 July 2026.

¹⁴ "Ambient (Outdoor) Air Pollution." *World Health Organization*, 24 Oct. 2024, [www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health). Accessed 10 July 2026.

¹⁵ "Noncommunicable Diseases." *World Health Organization*, 25 Sept. 2025, www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed 10 July 2026.

¹⁶ Wright, Ada, and Pallavi Pant. "1 in 8 Deaths Now Attributed to Air Pollution Globally." *Clean Air Fund*, 19 June 2024, www.cleanairfund.org/news-item/hei-global-air-pollution-report/. Accessed 10 July 2026.

¹⁷ World Health Organization. "Ambient (Outdoor) Air Pollution." *World Health Organization*, 24 Oct. 2024, [www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health). Accessed 21 July 2026.

China's air quality crisis is a byproduct of its economic success. Beginning in the early 1990s, China built the world's largest manufacturing economy. This growth relied heavily on coal-fired power, heavy industry, rapidly expanding vehicle usage, and coal-based heating. A large number of dangerous pollutants created by this economic expansion have been released into the air. As a result, the North China Plain, which includes Beijing, Tianjin, and the surrounding province of Hebei, became one of the most polluted regions in the world.

An earlier example of large-scale pollution control occurred during the 2008 Beijing Summer Olympics, when authorities restricted traffic and temporarily closed highly polluting factories. The measures produced a rapid, although temporary, improvement in air quality.

In late 2012 and into early 2013, there were confirmed reports of extremely high air pollution levels (PM_{2.5}) in China from many independent observers, including a well-regarded U.S. Embassy study of air quality in Beijing.

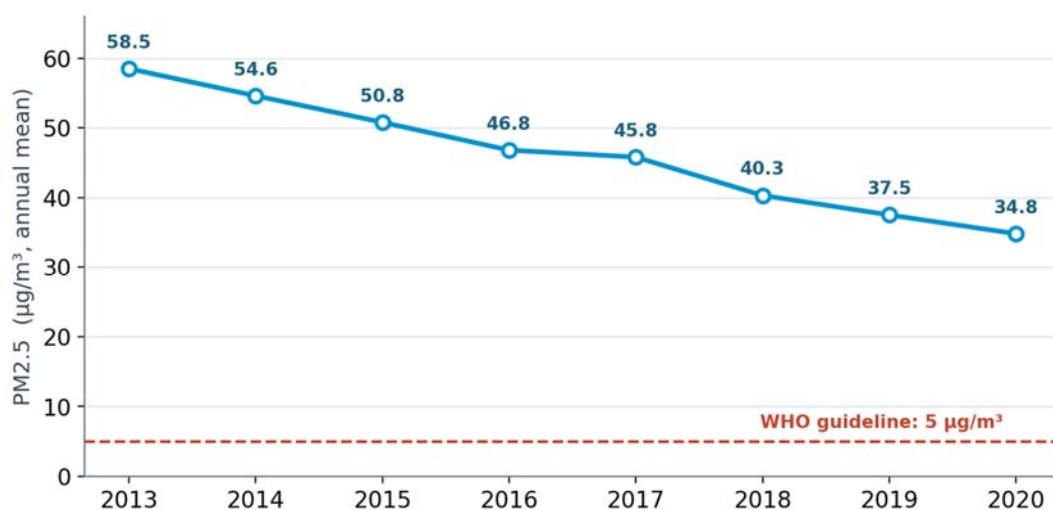


Figure 2: China's mean average exposure to PM2.5, 2013-2020 (World Bank).

There was widespread public outcry in China over very poor air quality. As a result of intense media coverage, PM2.5 was added to China's national air quality standards in 2012, leading to the rollout of the first national air pollution action plan in September 2013¹⁸, which introduced stricter controls on industrial emissions, shut down some of the most polluting coal-fired power plants and generally promoted a shift from coal to cleaner energy sources such as natural gas. Since the implementation of these measures, the average population-weighted PM2.5 exposure in China has dropped gradually.

China's own figures express the same conclusion on a different scale. The Ministry of Ecology and Environment reports that the average PM2.5 reading across its major cities dropped from about 72 $\mu\text{g}/\text{m}^3$ in 2013 to 29 $\mu\text{g}/\text{m}^3$ in 2022.¹⁹ However, 29 $\mu\text{g}/\text{m}^3$ is still close to six times the WHO guideline of 5 $\mu\text{g}/\text{m}^3$.

Sources of air pollution in China

Understanding sources is important because they determine pollution reduction methods. In China, most fine particulate matter is from combustion sources, with the main combustion source being coal. Coal is the largest electricity source and is also the primary input for steel, cement, and heavy industrial production. The second largest source of fine particulate matter is transportation, especially diesel trucks and road traffic in large urban areas. Due to the use of coal-fired district heating throughout northern China, pollution concentrations significantly increase during the winter months and are usually at their highest between late November and early March.

Geographic factors also impact pollution episodes. For example, the North China Plain, particularly around Beijing and Tianjin and in Hebei province, has heavy industry and dense transportation combined with coal heating all contained in a valley completely surrounded by mountains. As a result, when wind speeds are low or absent, fine particulate matter is not dispersed and can build up over the course of a winter day, reaching much higher concentrations than under windier conditions. Other contributors to airborne fine particulate matter include construction dust, agriculture, and burning of agricultural waste. Furthermore, due to the number of sources contributing to airborne fine particulate matter across power production, industries, transportation, and heating, there is no single solution for reducing airborne fine particulate matter. The problem is exacerbated by the need to overhaul several large systems simultaneously to

¹⁸Jin, Iris, et al. "A Brief Summary of China's Air Protection Policies." *Asia Pacific Foundation of Canada*, www.asiapacific.ca/brief-summary-chinas-air-protection-policies. Accessed 10 July 2026.

¹⁹Xinhua. "China Publishes Action Plan to Improve Air Quality." *The State Council of the People's Republic of China*, 8 Dec. 2023, english.www.gov.cn/policies/latestreleases/202312/08/content_WS65724f25c6d0868f4e8e1fcb.html. Accessed 10 July 2026.

accomplish the reductions in fine particulate matter emissions. This, in part, explains why gains in reducing pollution concentrations are very difficult to sustain²⁰ and why the issue is overall so hard to combat.

The noncommunicable disease burden in China

Although air quality gradually improved, the burden of non-communicable diseases continued to rise. Noncommunicable diseases (NCDs) lay behind roughly 10.6 million deaths in China in 2021, about 91% of the country's total.²¹ Cardiovascular disease accounted for 5.1 million of those deaths, while cancers accounted for about 2.8 million.²²

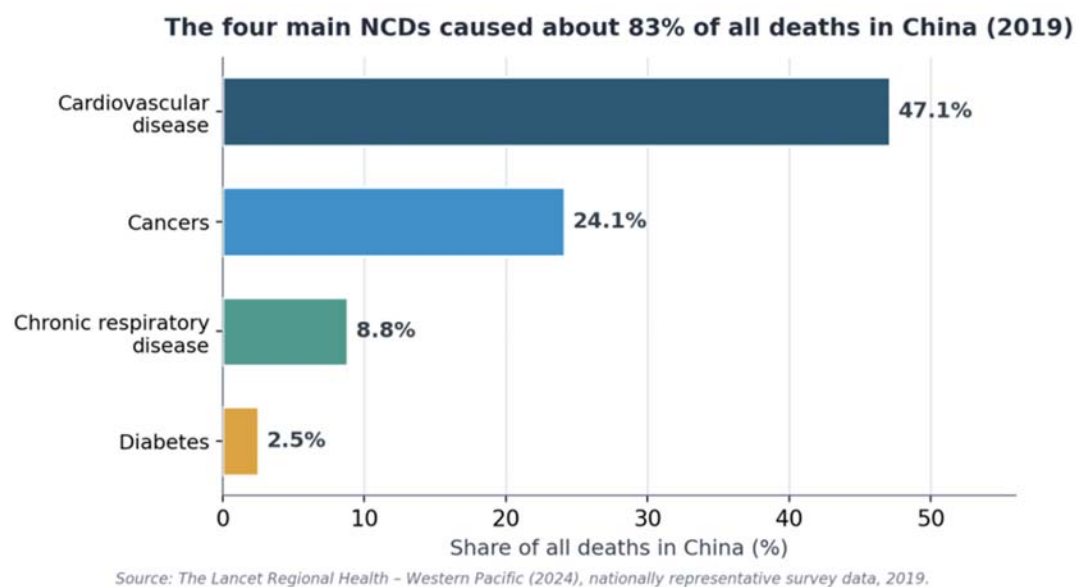


Figure 3: Percentage of deaths by NCDs

The chronic disease share of NCDs has been steadily increasing from approximately 80% in 2002 to nearly 88.5% by 2019 and up to nearly 91% in 2021.²³ The increase in people living longer with chronic diseases is largely attributed to reduced rates of mortality due to infectious diseases. As a result, heart-disease and stroke cases are expected to keep rising even as the air

²⁰ Huang, Yanzhong. "China's Battle against Air Pollution: An Update." *Council on Foreign Relations*, 24 Apr. 2024, www.cfr.org/articles/chinas-battle-against-air-pollution-update. Accessed 10 July 2026.

²¹ Liu, Hanxiao, et al. "Burden of Non-Communicable Diseases in China and Its Provinces, 1990–2021: Results from the Global Burden of Disease Study 2021." *Chinese Medical Journal*, vol. 137, no. 19, 2024, pp. 2325–33. <https://doi.org/10.1097/CM9.0000000000003270>.

²² Liu, Hanxiao, et al. "Burden of Non-Communicable Diseases in China and Its Provinces, 1990–2021: Results from the Global Burden of Disease Study 2021." *Chinese Medical Journal*, vol. 137, no. 19, 2024, pp. 2325–2333, <https://www.ovid.com/jnls/cmj/fulltext/10.1097/cm9.0000000000003270~burden-of-non-communicable-diseases-in-china-and-its>.

²³ Peng, Wen, et al. "Trends in Major Non-Communicable Diseases and Related Risk Factors in China 2002–2019: An Analysis of Nationally Representative Survey Data." *The Lancet Regional Health—Western Pacific*, vol. 43, 2024, article 100809. <https://doi.org/10.1016/j.lanwpc.2023.100809>.

improves. Air pollution sits on top of the other big drivers, such as smoking, unhealthy diets, high blood pressure, and diabetes) and makes each one of them even more dangerous.

The relationship between air pollution and NCD mortality

One way to assess the amount of overlap is by calculating the number of deaths attributed directly to fine particles. According to the 2021 Global Burden of Disease Estimates, PM2.5 was linked to approximately 2.27 million deaths in China, including around 1.9 million associated with outdoor air pollution and the remainder with household pollution.²⁴ In 2019, outdoor PM2.5-related deaths were estimated to be around 1.4 million. According to the State of Global Air report, 15 out of the 20 cities worldwide with the highest PM2.5-related death rates are located in China.²⁵ China and India account for approximately 56% of the total global deaths caused by PM2.5 due to their large populations and extremely high levels of exposure.²⁶

Consequences of Air Pollution in China

Economic and social costs

The consequences extend beyond the loss of human life. The treatment of cardiovascular disease, stroke, cancer and respiratory illness places a substantial financial burden on the healthcare system, while illness and premature death also reduce workforce participation and productivity. One study of Beijing tied PM2.5 to nearly 49,000 deaths in the city in 2021 and to losses worth about 7.9% of its GDP that year.²⁷ The World Bank has argued for years that, for China, the price of dirty air, health spending and lost output together accounts for hundreds of billions of dollars a year.

Vulnerable Groups

Air pollution is distributed unevenly across different populations and regions. WHO considers air pollution to be one of the biggest threats children are facing. Children have much higher rates of respiration than adults. Children's lungs and brains are still being developed. Exposure to air pollution at an early age has been linked to asthma, insufficient lung growth, and

²⁴ Yu, Tanchun, et al. "National and Provincial Burden of Disease Attributable to Fine Particulate Matter Air Pollution in China, 1990–2021: An Analysis of Data from the Global Burden of Disease Study 2021." *The Lancet Planetary Health*, vol. 9, no. 3, Mar. 2025, pp. e174–e185, <https://www.sciencedirect.com/science/article/pii/S2542519625000245>.

²⁵ Health Effects Institute. *Air Quality and Health in Cities: A State of Global Air Report*. Health Effects Institute, 2022, www.stateofglobalair.org/sites/default/files/documents/2022-08/2022-soga-cities-report.pdf. Accessed 11 July 2026.

²⁶ "PM2.5." *State of Global Air*, Health Effects Institute, www.stateofglobalair.org/pollution-sources/pm25. Accessed 20 July 2026.

²⁷ Wang, Xiaoqi, et al. "Exploring the Burden of PM2.5-Related Deaths and Economic Health Losses in Beijing." *Toxics*, vol. 12, no. 6, 2024, article 377. <https://doi.org/10.3390/toxics12060377>.

severe long-term consequences as an adult.²⁸ Likewise, the elderly and individuals who are suffering from heart or lung disease have a much higher chance of dying when pollution spikes. Outdoor workers, like construction workers, market vendors and delivery couriers, are exposed to pollution at significantly higher levels than office workers. Additionally, poorer regions of China (e.g. Hebei Province) generally have poorer air quality, as well as limited access to hospitals with good health care, than wealthier regions (e.g. Coastal cities). Thus, effective solutions must account for these populations, as they are most affected by poor air quality.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

India

The environmental situation concerning air-pollution is not any different from the current situation in China. Since 2013, various effective measures have already been adopted in order to prevent deteriorating air-quality indicators of the Indian air. The National Clean Air Programme was launched in January 2019, which is a national program aimed at achieving PM2.5 and PM10 concentration reduction quantified as 20–30% in comparison with 2017 within five years. Moreover, April 2020 saw the introduction of Bharat Stage VI vehicle emission standards across the country, new vehicle emission restrictions were imposed.

People's Republic of China

The People's Republic of China is the primary focus for discussion and the main stakeholder in this issue. Three key players carry the majority of the responsibility for this work. The Ministry of Ecology and Environment (MEE) is responsible for regulation and enforcement of air quality standards and is in charge of the national monitoring network to allow for ongoing tracking and analysis to identify sources of pollution. The National Health Commission (NHC) oversees the nation's health system and the "Healthy China" initiative, which focuses on non-communicable diseases (NCDs). The Chinese Center for Disease Control and Prevention (China CDC) maintains the disease and exposure data. Over time, Beijing's approach to air pollution has shifted from treating it as a cost of economic growth to addressing it as a major policy challenge. Its clean-air efforts now offer a model for other developing economies.

United Kingdom

In December 1952, London experienced a period of unusually cold, stagnant anticyclonic weather. Windless conditions and a temperature inversion trapped smoke from coal burned in homes and factories close to the ground, creating a thick layer of smog over the city. This incident became known as the "Great Smog." Medical records at the time stated that approximately 4,000 people died as a result, while later studies indicated that the actual number was closer to 12,000.

²⁸ "Ambient (Outdoor) Air Pollution." *World Health Organization*, 24 Oct. 2024, www.who.int/news-room/fact-sheets/ambient-%28outdoor%29-air-quality-and-health. Accessed 11 July 2026.

Following this incident, Britain passed the Clean Air Act in 1956, which required homes and businesses to replace coal with cleaner fuels and established smoke-control areas in cities.

C40 Cities

“Established in 2005, C40 Cities represent just under 600 million residents worldwide and are instrumental in reducing greenhouse gas emissions and climate risks, while increasing health, well-being, and economic opportunities. As urban areas continue to grow, the role of these cities is becoming increasingly crucial in shaping a sustainable future, demonstrating the power of collective action in the face of climate change. C40 is a network of nearly 100 mayors across the world committed to addressing climate change. This initiative brings together urban centres from around the globe to collaborate on reducing greenhouse gas emissions and improving climate resilience. By adopting a science-based approach, C40 mayors find themselves at the cutting edge of climate action.”²⁹

Clean Air Fund

The Clean Air Fund is “a global philanthropic organisation working with governments, funders, businesses and campaigners to create a future where everyone breathes clean air.”³⁰ The organization aims to tackle air pollution by initiating change across the board, from grassroots to governments. They prioritize areas where there is greater need and potential for impact, such as the EU, Ghana, India, Indonesia, South Africa and the UK. Additionally, they run global programmes, such as Breathe Cities, to raise awareness about air pollution and the international climate and health agendas.³¹

Health Effects Institute (HEI)

The Health Effects Institute (HEI) is a nonprofit corporation that was established in 1980 as an independent research organization. It aims to provide high-quality, impartial, and relevant science on the health effects of air pollution. HEI typically receives joint funding from the U.S. Environmental Protection Agency and the worldwide motor vehicle industry. Together with IHME, HEI publishes the annual *State of Global Air* (SoGA) initiative, a major research and outreach initiative that provides reliable, open-access information on air quality and its health impacts worldwide.

Institute for Health Metrics and Evaluation (IHME)

The Institute for Health Metrics and Evaluation (IHME) is an independent population health research organization based at the University of Washington School of Medicine. It collaborates with other institutions globally to develop timely, relevant, and scientifically valid evidence on the state of health around the world. Together with HEI, IHME publishes the annual *State of Global*

²⁹ Anderson, Kara. “What Are C40 Cities?” *Greenly*, 22 Feb. 2024, www.greenly.earth/en-gb/blog/company-guide/what-are-c40-cities. Accessed 11 July 2026.

³⁰ “About Clean Air Fund.” *Clean Air Fund*, www.cleanairfund.org/about-clean-air-fund/. Accessed 11 July 2026.

³¹ Ibid.

Air (SoGA) initiative, a major research and outreach initiative that provides reliable, open-access information on air quality and its health impacts worldwide.³²

United Nations Environment Programme (UNEP)

The United Nations Environment Programme aims to address the environmental causes of air pollution, by helping countries lower their harmful emissions and promoting cleaner energy and transport systems. While the WHO focuses primarily on the health impacts of air pollution, UNEP approaches the issues from its source. Therefore, communication between UNEP, the WHO and national governments is crucial, because effectively addressing NCDs caused by air pollution requires both reducing the harmful emission and protecting public health in general.

World Bank (WB)

The World Bank provides funding for both environmental and health programs and has produced an extensive literature base regarding the costs of pollution and the rise in NCDs in China, including its publication entitled “Toward a Healthy and Harmonious Life in China”. At the same time, the WB has been directly supporting China’s efforts to reduce their air pollution through financial and technical assistance. For instance, in 2016, it provided \$500 million US dollars to help start the effort to alleviate air pollution in Hebei Province, by specifically targeting emissions from industries, transportation and many other major sources of air pollution. It has also funded projects promoting efficient use of energy, the adoption of renewable energy sources and more environmentally friendly heating in the Beijing-Tianjin-Hebei region. These initiatives contributed to Hebei’s average PM2.5 concentration falling by nearly 40% between 2013 and the end of 2017.³³

TIMELINE OF EVENTS

³² Health Effects Institute. *Trends in Air Quality and Health Impacts: Insights from Central, South, and Southeast Asia*. 2025, www.stateofglobalair.org/sites/default/files/documents/2025-08/soga-asia-report.pdf. Accessed 11 July 2026.

³³ World Bank. “Breathing Easier: Supporting China’s Ambitious Air Pollution Control Targets.” *World Bank*, 7 May 2020, www.worldbank.org/en/results/2020/05/07/breathing-easier-supporting-chinas-ambitious-air-pollution-control-targets. Accessed 21 July 2026.

DATE	DESCRIPTION OF EVENT
5-9 December 1952	The Great Smog covers London after coal smoke becomes trapped by stagnant weather conditions, causing thousands of deaths and increasing pressure for stronger air-pollution legislation. ³⁴
5 July 1956	The United Kingdom's Clean Air Act receives Royal Assent, introducing smoke-control measures and encouraging the replacement of heavily polluting fuels. ³⁵
12 August 2006	WHO publishes the Air Quality Guidelines: Global Update 2005, providing updated air-quality guideline values applicable globally. ³⁶
20 July 2008	Beijing restricts traffic and shuts polluting factories for the Summer Olympics; air visibly clears, showing strong measures work fast. ³⁷
26 October 2010	WHO publishes its Package of Essential Noncommunicable Disease Interventions for primary healthcare in low-resource settings. ³⁸
29 February 2012	For the first time, China included PM2.5 in its national air-quality standards. ³⁹
12–13 January 2013	Record smog blankets Beijing and much of northern China; the press calls it the

³⁴ Met Office. "The Great Smog of 1952." *Met Office*, [weather.metoffice.gov.uk/learn-about/weather/case-studies/great-smog](https://www.metoffice.gov.uk/learn-about/weather/case-studies/great-smog). Accessed 12 Aug. 2026.

³⁵ UK Parliament. "Clean Air Act (Operation)." *Hansard*, 19 Feb. 1958, hansard.parliament.uk/commons/1958-02-19/debates/d7312c81-a1ed-42f7-a29a-1578716b2eee/CleanAirAct%28Operation%29. Accessed 12 Aug. 2026.

³⁶ World Health Organization, Regional Office for Europe. *Air Quality Guidelines: Global Update 2005: Particulate Matter, Ozone, Nitrogen Dioxide and Sulfur Dioxide*. World Health Organization Regional Office for Europe, 2006, iris.who.int/handle/10665/107823. Accessed 11 July 2026.

³⁷ Wang, Jianjie, et al. "Air-Quality Management and Weather Prediction during the 2008 Beijing Olympics." *WMO Bulletin*, vol. 58, no. 1, 1 Jan. 2009, [wmo.int/media/magazine-article/air-quality-management-and-weather-prediction-during-2008-beijing-olympics](https://www.wmo.int/media/magazine-article/air-quality-management-and-weather-prediction-during-2008-beijing-olympics). Accessed 11 July 2026.

³⁸ World Health Organization. *Package of Essential Noncommunicable (PEN) Disease Interventions for Primary Health Care in Low-Resource Settings*. World Health Organization, 26 Oct. 2010, <https://www.who.int/publications/i/item/9789241598996>. Accessed 12 Aug. 2026.

³⁹ "China: Air Quality Standards." *TransportPolicy.net*, www.transportpolicy.net/standard/china-air-quality-standards/. Accessed 11 July 2026.

	"airpocalypse," pushing air quality into national debate. ⁴⁰
27 May 2013	The World Health Assembly endorses the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020, including nine voluntary global targets. ⁴¹
10 September 2013	China's State Council issues the Air Pollution Prevention and Control Action Plan (2013–2017), its first national clean-air plan. ⁴²
5 March 2014	Premier Li Keqiang declares a "war on pollution" in the government's annual work report. ⁴³
1 January 2015	China's revised Environmental Protection Law takes effect, giving regulators stronger enforcement powers. ⁴⁴
26 May 2015	The World Health Assembly adopts resolution WHA68.8 on the health impact of air pollution, the first dedicated WHO resolution on the issue. ⁴⁵
7 December 2015	Beijing issues its first red alert for severe air pollution, leading to school closures, odd–even vehicle restrictions and temporary limits on construction and industrial activity. ⁴⁶
6 June 2016	The World Bank approves a US \$500 million loan to support air-pollution controls in Hebei Province, targeting emissions from industry, transport, agriculture and other sources. ⁴⁷

⁴⁰ Ferreri, Joshua M., et al. "The January 2013 Beijing 'Airpocalypse' and Its Acute Effects on Emergency and Outpatient Visits at a Beijing Hospital." *Air Quality, Atmosphere & Health*, vol. 11, no. 3, Apr. 2018, pp. 301–09. <https://doi.org/10.1007/s11869-017-0538-0>.

⁴¹ World Health Organization. "Global Action Plan for the Prevention and Control of NCDs 2013–2020." *World Health Organization*, 10 May 2015, <https://www.who.int/news/item/10-05-2015-global-action-plan-for-the-prevention-and-control-of-ncds-2013-2020>. Accessed 12 Aug. 2026.

⁴² "The State Council Issues Action Plan on Prevention and Control of Air Pollution Introducing Ten Measures to Improve Air Quality." *Ministry of Ecology and Environment of the People's Republic of China*, 12 Sept. 2013, english.mee.gov.cn/News_service/infocus/201309/t20130924_260707.shtml. Accessed 11 July 2026.

⁴³ Branigan, Tania. "Chinese Premier Declares War on Pollution in Economic Overhaul." *The Guardian*, 5 Mar. 2014, www.theguardian.com/world/2014/mar/05/china-pollution-economic-reform-growth-target. Accessed 11 July 2026.

⁴⁴ Wu, Guoyong, et al. "How Does the New Environmental Protection Law Affect the Environmental Social Responsibility of Enterprises in Chinese Heavily Polluting Industries?" *Humanities and Social Sciences Communications*, vol. 11, 24 Jan. 2024, article 168. <https://doi.org/10.1057/s41599-024-02674-6>.

⁴⁵ World Health Assembly. "Health and the Environment: Addressing the Health Impact of Air Pollution." *Sixty-Eighth World Health Assembly: Resolutions and Decisions, Annexes*, resolution WHA68.8, World Health Organization, 2015, pp. 20–24, apps.who.int/gb/ebwha/pdf_files/wha68-rec1/a68_r1_rec1-en.pdf. Accessed 11 July 2026.

⁴⁶ Xinhua. "Beijing Issues First Red Alert for Heavy Air Pollution." *China Daily*, 7 Dec. 2015, https://www.chinadaily.com.cn/china/2015-12/07/content_22652539.htm. Accessed 12 Aug. 2026.

⁴⁷ World Bank. "China: Hebei's Efforts to Curb Air Pollution Get More Support from the World Bank." *World Bank*, 6 June 2016, <https://www.worldbank.org/en/news/press-release/2016/06/06/china-hebeis-efforts-to-curb-air-pollution-get-more-support-from-the-world-bank>. Accessed 12 Aug. 2026.

25 October 2016	China releases the “Healthy China 2030” plan, linking health goals to pollution control. ⁴⁸
December 2017	Rapid coal-to-gas and coal-to-electricity conversions in northern China contribute to heating shortages, prompting authorities to reallocate energy supplies and temporarily permit coal use where cleaner heating was not yet reliable. ⁴⁹
17 March 2018	China launches the Three-Year Action Plan for Winning the Blue Sky War (2018–2020) and creates the Ministry of Ecology and Environment. ⁵⁰
10 January 2019	India launches the National Clean Air Programme, initially targeting a 20–30% reduction in PM2.5 and PM10 concentrations by 2024 compared with 2017 levels. ⁵¹
1 April 2020	India implements Bharat Stage VI vehicle-emission standards nationwide, tightening requirements for emissions from new vehicles. ⁵²
22 September 2021	WHO tightens its Air Quality Guidelines, cutting the recommended annual PM2.5 limit from 10 to 5 $\mu\text{g}/\text{m}^3$. ⁵³
28 May 2022	The World Health Assembly approves the Implementation Roadmap 2023–2030 to accelerate national action against noncommunicable diseases. ⁵⁴
7 December 2023	China issues the Action Plan for Continuous Improvement of Air Quality, its third national clean-

⁴⁸ Tan, Xiaodong, et al. “Healthy China 2030: A Vision for Health Care.” *Value in Health Regional Issues*, vol. 12, May 2017, pp. 112–14. <https://doi.org/10.1016/j.vhri.2017.04.001>.

⁴⁹ Weng, Zhixiong, et al. “Environmental and Economic Impacts of Transitioning to Cleaner Heating in Northern China.” *Resources, Conservation and Recycling*, vol. 172, Sept. 2021, article 105673, <https://www.sciencedirect.com/science/article/pii/S0921344921002822>.

⁵⁰ Poynting, Mark, and Matt McGrath. “China Makes Landmark Pledge to Cut Its Climate Emissions.” *BBC News*, 24 Sept. 2025, www.bbc.com/news/articles/cj4y159190go. Accessed 11 July 2026.

⁵¹ Ministry of Environment, Forest and Climate Change. “Government Launches National Clean Air Programme (NCAP).” *Press Information Bureau*, Government of India, 10 Jan. 2019, <https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1559384>. Accessed 12 Aug. 2026.

⁵² Ministry of Road Transport and Highways. “Limited Registration of BS-IV Vehicles to Be Allowed as per Apex Court Order Dated 27.3.2020.” *Press Information Bureau*, Government of India, 1 Apr. 2020, <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1609869>. Accessed 12 Aug. 2026.

⁵³ “New WHO Global Air Quality Guidelines Aim to Save Millions of Lives from Air Pollution.” *World Health Organization*, 22 Sept. 2021, www.who.int/news/item/22-09-2021-new-who-global-air-quality-guidelines-aim-to-save-millions-of-lives-from-air-pollution. Accessed 11 July 2026.

⁵⁴ World Health Organization. “World Health Assembly Approves a Global Implementation Roadmap to Accelerate Action on Noncommunicable Diseases (NCDs).” *World Health Organization*, 28 May 2022, <https://www.who.int/news-room/feature-stories/detail/world-health-assembly-approves-a-global-implementation-roadmap-to-accelerate-action-on-noncommunicable-diseases-%28ncds%29>. Accessed 12 Aug. 2026.

	air plan; the same year, national PM2.5 rises for the first time since 2013. ⁵⁵
25–27 March 2025	The Second WHO Global Conference on Air Pollution and Health, in Cartagena, gathers over 100 countries around a goal of halving the health impact of air pollution by 2040. ⁵⁶
19–27 May 2025	The 78th World Health Assembly approves an updated road map on air pollution and a separate resolution on lung health. ⁵⁷

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

WHA 68.8 (2015)

Resolution WHA68.8, “Health and the environment: addressing the health impact of air pollution”, adopted by the World Health Assembly in May 2015, is a landmark global mandate addressing the severe health impacts of both indoor and outdoor air pollution. It identifies air pollution as the world’s largest single environmental health risk, responsible for approximately 7 million premature deaths annually, and urges Member States to strengthen health sector engagement, promote air quality monitoring, and accelerate the transition to clean energy. It is the WHO’s first World Health Assembly resolution dedicated solely to air pollution; it defines the organization’s role in addressing the effects of air pollution on human health and aims to create a road map for improving worldwide air quality.⁵⁸

WHO Global Air Quality Guidelines (2021) ⁵⁹

The 2021 guidelines built on earlier WHO guidance, including the *Air Quality Guidelines: Global Update 2005*, published in 2006, which provided revised guideline values intended for global application. These guidelines, taking into account the latest body of evidence on the health impacts of different air pollutants, are a key step in the global response to air pollution. The next step is for policy-makers around the world to use these guidelines to inform evidence-based

⁵⁵ Silver, Ben, et al. “A Decade of China’s Air Quality Monitoring Data Suggests Health Impacts Are No Longer Declining.” *Environment International*, vol. 197, Mar. 2025, article 109318. <https://doi.org/10.1016/j.envint.2025.109318>.

⁵⁶ “2025—Conference Primer: Global Health.” *Research Guides at United Nations Library & Archives Geneva*, libraryresources.unog.ch/c.php?g=679387&p=5269163. Accessed 11 July 2026.

⁵⁷ Vande Lanotte, Evelyne. *The 78th World Health Assembly: “One World for Health.”* European Parliament, Policy Department for Transformation, Innovation and Health, May 2025. PE 772.475, <https://doi.org/10.2861/9017447>.

⁵⁸ World Health Organization. *Health and the Environment: Addressing the Health Impact of Air Pollution: Report by the Secretariat*. Document A68/18, 10 Apr. 2015, apps.who.int/gb/ebwha/pdf_files/wha68/a68_18-en.pdf. Accessed 11 July 2026.

⁵⁹ *WHO Global Air Quality Guidelines: Particulate Matter (PM2.5 and PM10), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide*. World Health Organization, 2021, iris.who.int/handle/10665/345329. Accessed 11 July 2026.

legislation and policies to improve air quality and reduce the unacceptable health burden that results from air pollution. Although not legally binding, these guidelines provide the scientific foundation for all action to be taken and for the suggestions that WHO makes. Countries are given a safe target level for annual average exposures to PM_{2.5} of 5 µg/m³ as well as four interim targets (35, 25, 15 and 10 µg/m³) to work toward on their way to meeting that target.⁶⁰

Updated WHO road map on air pollution, WHA78 (2025)

In May of 2025, the World Health Assembly held its 78th meeting in which approval was granted for a new road map aimed at tackling the problem of air pollution. At this meeting, the Member States approved a voluntary target concerning the reduction of premature air pollution related deaths caused by human activity to half of their 2015 level by 2040. The meeting also saw the adoption of a separate resolution focused on lung health, reflecting the growing recognition of air pollution as an important factor contributing to both communicable and non-communicable diseases. The significance of the new road map revolves around the fact that instead of stating that pollution is a health issue, it focuses on tangible results achieved in air quality improvement. This can be accomplished by giving countries a long-term common objective and allowing governments to work in the fields of monitoring, health policies and coordination between health, environment and energy sectors. However, it should not be forgotten that the target provided by the new document is voluntary meaning that WHO cannot oblige the Member States to follow it, thus making its success dependent on the way countries implement the objectives.

Second WHO Global Conference on Air Pollution and Health, Cartagena (2025)

This conference organized by the Colombian government and the World Health Organization was held in Cartagena, Colombia, in March 2025 and gathered more than 700 delegates from about 100 world countries. Over 50 countries, cities, and organizations have pledged to take part in the achievement of the common task of diminishing health impacts of air pollution by 50% by 2040. The pledges included increasing the air quality standards and monitoring systems and providing the necessary funding for dealing with pollution-related diseases as well as promoting green energy and transport. As a result of the conference, the event enabled moving from discussions to concrete pledging of a great number of countries and organizations as well as establishing the basis for cooperation between the sectors of health, environment and energy.

WHO Global Action Plan for the Prevention and Control of NCDs (2013-2030)

The World Health Organization Global Action Plan on NCDs was endorsed during the World Health Assembly in 2013, then extended until 2030. The plan included nine voluntary global targets with the main action goals; decreasing deaths caused by cardiovascular diseases, cancer, diabetes and diseases of the respiratory system. The objectives include decreasing high blood

⁶⁰ World Health Organization. *WHO Global Air Quality Guidelines: Particulate Matter (PM_{2.5} and PM₁₀), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide*. World Health Organization, 2021, <https://www.who.int/publications/i/item/9789240034228>. Accessed 12 Aug. 2026.

pressure, increasing accessibility to managing and counseling patients in danger, while the rest of the objectives relate to smoking, drinking, physical inactivity, intake of salt, diabetes and obesity. The Action Plan itself does not provide any regulations on air pollution as such; however, it may help address the issue by enabling countries to prevent, detect and treat diseases that dirty air contributes to. Targets such as premature deaths, hypertension, and attainment of the essential treatments and medicines are especially important since air pollution is known to result in heart diseases, strokes, lung cancer as well as chronic respiratory disease. As a step in the right direction, the World Health Assembly adopted the Implementation Roadmap 2023–2030 in 2022 encouraging countries to enhance effective interventions, improve their national health data, and increase accountability for their achievements.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Air Pollution Prevention and Control Action Plan (2013)

2013's Air Pollution Prevention and Control Action Plan, set target levels for atmospheric particulate matter (PM_{2.5}) emissions in the most heavily polluted cities in China and guided industries to install controls on their emissions, shut down the dirtiest coal-fired power plants, and shift from coal to natural gas fuel sources for energy generation. By the end of the program in 2017, these actions resulted in a significant reduction in PM_{2.5} emissions across the country.⁶¹ The political importance of this effort increased further in March 2014, when Premier Li Keqiang publicly declared a “war on pollution”, signalling that pollution control had become a major national priority. This commitment was strengthened further when China's revised Environmental Protection Law took effect on 1 January 2015, giving environmental regulators stronger powers to enforce pollution-control requirements.⁶² The results were substantial. From 2013 to 2017, average PM_{2.5} concentrations fell by nearly 33% across 74 cities, while average sulphur dioxide concentrations lowered by about 54%. These changes were linked to roughly 47,000 less premature deaths in 2017 than in 2013. The plan did not work equally well for every pollutant, however. Much of the early progress came from fairly direct measures, particularly closing the most polluting coal-fired plants and replacing coal with natural gas. Once those steps had been taken, later plans faced slower and more difficult reductions.

Healthy China 2030 (2016)

From a public health perspective, China established its Healthy China 2030 program in 2016, which included the development of goals for managing the non-communicable disease (NCD) epidemic and officially recognised long-term air pollution as being a contributor to the growing NCD crisis in the country. The Healthy China 2030 program provided for increased access to primary care and preventive health screening for conditions such as hypertension and

⁶¹ Feng, Yueyi, et al. “Defending Blue Sky in China: Effectiveness of the ‘Air Pollution Prevention and Control Action Plan’ on Air Quality Improvements from 2013 to 2017.” *Journal of Environmental Management*, vol. 252, 15 Dec. 2019, article 109603. <https://doi.org/10.1016/j.jenvman.2019.109603>.

⁶² Ministry of Environmental Protection of the People's Republic of China. “MEP: Updated Environment Protection Law Maximizes the Consensuses of All Stakeholders.” *Ministry of Ecology and Environment of the People's Republic of China*, 4 May 2014, https://english.mee.gov.cn/News_service/news_release/201405/t20140504_271231.shtml. Accessed 12 Aug. 2026.

diabetes, which are the primary causes of mortality associated with air pollution. Healthy China 2030 made disease prevention, early diagnosis and the management of chronic diseases a larger part of national health policy. By 2019, around 90% of the population could reach a primary healthcare institution within 15 minutes. Average life expectancy reached 79.25 years in 2025, slightly above the programme's target of 79 years.⁶³ Access to healthcare though does not guarantee successful diagnosis, treatment or a follow-up. WHO estimates that around 270 million people in China have hypertension, yet only 13.8% receive successful treatment.⁶⁴ The programme also deals mainly with the health damage caused by pollution. It does not deal with emissions at their source. Some illnesses linked to earlier exposure will continue to appear even if air quality improves. WHO can offer technical guidance, but China remains responsible for funding and enforcing national policy. Healthy China 2030 therefore still depends on strong pollution controls.

Three-Year Action Plan for Winning the Blue Sky War (2018–2020)

The Three-Year Action Plan for Winning the Blue Sky War (2018-2020), the second clean air plan that was adopted, expanded the list of cities subject to coverage under the clean air laws established in 2013, and required a minimum reduction of PM2.5 emissions of at least 18% from a base year of 2015. The Three Year Action Plan and the establishment of the Ministry of Ecology and Environment as the single regulator responsible for enforcing China's clean air laws further advanced China's clean air efforts and the country's progress overall towards cleaning up the air.⁶⁵ The plan turned out to be effective in achieving all of its goals. By 2020, the cities that had previously failed to meet the national standards achieved an average reduction of PM2.5 of 28.8% as compared to 2015⁶⁶, which exceeds the previously set target of 18%. The total number of clear days within 337 major cities amounted to 87%.⁶⁷ However, the plan did not solve the air pollution problem in China. Moreover, ozone pollution remained difficult to be under control and the winter months were still characterized by heavy pollution in certain regions. Thus, although the Blue Sky War proved the possibility of achieving remarkable results regarding PM2.5, it showed that continuing the implemented measures is necessary in order to sustain the achieved results and tackle the problem of other types of pollutants.

The 2023 Action Plan for Continuous Improvement of Air Quality

⁶³ Xinhua. "China Publishes Action Plan to Improve Air Quality." *The State Council of the People's Republic of China*, 8 Dec. 2023, https://english.www.gov.cn/policies/latestreleases/202312/08/content_WS65724f25c6d0868f4e8e1fcb.html. Accessed 12 Aug. 2026.

⁶⁴ Xinhua. "China's Green Milestone in Tackling Air Pollution." *Ministry of Ecology and Environment of the People's Republic of China*, 1 Mar. 2021, https://english.mee.gov.cn/News_service/media_news/202103/t20210301_822709.shtml. Accessed 12 Aug. 2026.

⁶⁵ Huang, Yanzhong. "China's Battle against Air Pollution: An Update." *Council on Foreign Relations*, 24 Apr. 2024, www.cfr.org/articles/chinas-battle-against-air-pollution-update. Accessed 11 July 2026.

⁶⁶ "Document: Responding to Climate Change: China's Policies and Actions." *China Daily*, 28 Oct. 2021, <https://www.chinadaily.com.cn/a/202110/28/WS6179dfdba310cdd39bc71b86.html>. Accessed 19 Aug. 2026.

⁶⁷ Xinhua. "China Reports Notable Progress in Ecological, Environmental Protection during 14th Five-Year Plan Period." *Xinhua*, 28 Jan. 2026, <https://english.news.cn/20260128/d2009b0358f845f1b5713da6e2549bca/c.html>. Accessed 19 Aug. 2026.

The Action Plan for Ongoing Air Quality Improvement released by China in the month of December 2023 was intended to achieve a 10% reduction in the mean PM_{2.5} levels recorded in cities of prefecture tier or higher from the baseline levels recorded in the year 2020 by the year 2025. This plan also aimed to curb the share of days with severe air pollution to less than 1% of total days and lower emissions of nitrogen oxides and volatile organic compounds by 10% or more.⁶⁸ By the year 2025, the Action Plan was able to successfully reach some of its key goals and objectives set for the nation. PM_{2.5} levels were observed to reduce from 33 micrograms per cubic meter in 2020 to 28 micrograms per cubic meter in 2025, therefore, exceeding the target of 10% by achieving a reduction of around 15%.⁶⁹ Similarly, the share of days with severe pollution was observed to be 0.9%, which is below the target figure set in the Plan. Moreover, the findings released by the Ministry of Ecology and Environment show that the emissions of nitrogen oxides and volatile organic compounds are lower by 15% and 11% respectively, further surpassing the 10% target set for the two pollutants as well.⁷⁰ The Action Plan had some achievement to its credit, however, it does not mean that the problem of air pollution is fixed now. The national average PM_{2.5} level of 28 micrograms per cubic meter is five times higher than the guideline level issued by WHO which is only 5 micrograms per cubic meter and also varies by region considerably. Overall, the Action Plan managed to progress towards its key short-term objectives of the nation; however, further and more effective steps are needed to improve the environment further.

POSSIBLE SOLUTIONS

Integrating Air-Quality and NCD Policies

The spheres of air pollution and non-communicable diseases (NCDs) are frequently handled by separate agencies that seek to tackle the problem from their respective standpoints. This division of responsibility has the disadvantage of making the overall response less effective, with environmental policies addressing pollution without considering the consequences for health, while NCD strategies focus mainly on treatment and preventive measures without taking into account air pollution, which is one of the major risk factors. The solution based on the assumption that pollution and non-communicable diseases should be considered as a single problem should, therefore, encourage Member States to include the targets related to air quality in their NCD action plans as well as incorporate such changes in the opposite direction and foster collaboration between health ministries and environmental ministries. The important point related to this issue is that it may help to improve the measurement of results achieved by countries. As an illustration,

⁶⁸ Xinhua. "China Publishes Action Plan to Improve Air Quality." *The State Council of the People's Republic of China*, 8 Dec. 2023, https://english.www.gov.cn/policies/latestreleases/202312/08/content_WS65724f25c6d0868f4e8e1fcb.html. Accessed 12 Aug. 2026.

⁶⁹ National Bureau of Statistics of China. "Statistical Communiqué of the People's Republic of China on the 2025 National Economic and Social Development." *National Bureau of Statistics of China*, 28 Feb. 2026, https://www.stats.gov.cn/english/PressRelease/202602/t20260228_1962661.html. Accessed 12 Aug. 2026.

⁷⁰ Xinhua. "China Reports Notable Progress in Ecological, Environmental Protection during 14th Five-Year Plan Period." *Xinhua*, 28 Jan. 2026, <https://english.news.cn/20260128/d2009b0358f845f1b5713da6e2549bca/c.html>. Accessed 12 Aug. 2026.

the state implementing stricter limits on industrial emissions could monitor not only the concentration of PM_{2.5} but also changes in the incidence of cardiovascular and respiratory diseases caused by air pollution. WHO could provide necessary technical support for the calculation of health improvements and development of unified indicators which could be applied in order to get reliable health and air quality data. The advantage of this method is the coordination of policies adopted by Member States. The health ministry can analyze air quality data in order to find out the vulnerable population groups and the environmental ministry has a chance to check which pollutants affect the health of people the most. Nevertheless, such cooperation will be feasible only if countries are equipped with proper monitoring systems.

Interim targets

The WHO guideline for PM_{2.5} is an average of 5 µg/m³, annually.⁷¹ Unfortunately, for most developing countries this goal is particularly hard to achieve right now and this is very hard to change in the short term. Since WHO acknowledges this, the guidelines come with interim targets (35, 25, 15 and 10 µg/m³) that let countries work their way down in stages, with health gains at each step.⁷² A possible solution is to make those stages formal. Each Member State would adopt one interim target at a time, commit to a date and consequently report publicly on its progress until it achieves it. Then it should move on to the next, stricter target. A country at 40 µg/m³ has no credible route straight to 5, but can reach 35 and from 35 it can plan for 25. That turns the WHO guideline from one distant number into a series of commitments a government can more easily follow. The 5 µg/m³ guideline stays the end goal. The interim targets are just the route.

Renewable energy sources

Coal and transportation are the main disrupters of fine particles, therefore switching coal and attempting the purification of the transport sector resolves the problem at its root. In practical terms, it involves shutting down the most polluting coal-generating stations, changing their energy supply to renewable energy and gas, increasing the usage of electric vehicles and public transport and switching heavy industries to cleaner energy sources. China is already proving the success of this plan as it is buying more electric cars than the rest of the world combined now.⁷³ However, there is a caveat, China's own experience. In winter of 2017 the authorities attempted to move millions of households in Northern China from coal to gas within one season and gas supplies failed. Prices spiked up, factories shut down and local people burned things like corn stems and wood scraps to keep warm. The plan was halted in Hebei province and rescheduled to 2020 when gas from Russia was expected. The concept was enforceable, but the execution was rushed as

⁷¹ World Health Organization. *WHO Global Air Quality Guidelines: Particulate Matter (PM_{2.5} and PM₁₀), Ozone, Nitrogen Dioxide, Sulfur Dioxide and Carbon Monoxide*. World Health Organization, 22 Sept. 2021, <https://www.who.int/publications/i/item/9789240034228>. Accessed 12 Aug. 2026.

⁷² World Health Organization. "Ambient (Outdoor) Air Pollution." *World Health Organization*, 24 Oct. 2024, [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health). Accessed 12 Aug. 2026.

⁷³ Jaeger, Joel. "These Countries Are Adopting Electric Vehicles the Fastest." *World Resources Institute*, 5 Dec. 2025, www.wri.org/insights/countries-adopting-electric-vehicles-fastest. Accessed 26 July 2026.

coal was prohibited beforehand without having a clean alternative energy ready. Therefore, clean systems have to be created first and transitions should be gradual with an opportunity to revert to coal during emergency situations, like extreme weather conditions.

Early disease detection

Exposure to air pollution over decades has caused diseases which will continue coming along for years, even if clear air was established very promptly. For that reason air pollution control has to go along with healthy medical protocols that allow early diagnosis of cardiovascular diseases. There are very affordable and simple devices. Blood pressure measuring devices are very inexpensive, common antihypertensive medicines have become affordable and any qualified nurse can easily do a simple examination in a village hospital. These examinations have been incorporated in the WHO Package of Essential Noncommunicable Disease Interventions created for clinics with little money and staff.⁷⁴ However, for successful implementation of these examinations, the tests must lead to treatment and this is an area where China needs to improve. There are more than two hundred and forty-five million patients in the country with hypertension, but only about twelve percent had its high symptoms under control in 2018.⁷⁵ Screening can identify patients, but many are then lost to follow-up. The response should therefore support them through diagnosis, treatment and ongoing monitoring, rather than ending after the initial examination.

Accurate monitoring of pollutant exposure

Actions cannot be taken based on recorded exposures if the measurements are unavailable. China's actions and results can still be assessed to some extent because air-quality data are publicly available and updated hourly, allowing citizens and journalists to track conditions and evaluate whether reported improvements are reflected in the data. There are two problems that need to be solved. First, readings can be falsified. For instance, in the case of Xi'an, officials used cotton in the measuring instruments to get a lower reading, and ultimately, seven officials responsible for this got imprisoned. Therefore, it is necessary to have independent inspection of the equipment to prevent such malpractices.⁷⁶ Second, the reference stations are expensive, which is the reason why developing countries have no such stations. A solution can only work if there is a combination of governmental standards on using measuring instruments with satellite or cheap sensors.

Immediate protection

⁷⁴ World Health Organization. *Package of Essential Noncommunicable (PEN) Disease Interventions for Primary Health Care in Low-Resource Settings*. World Health Organization, 2010.

⁷⁵ Zhang, Mei, et al. "Prevalence, Awareness, Treatment, and Control of Hypertension in China, 2004–18: Findings from Six Rounds of a National Survey." *BMJ*, vol. 380, 2023, article e071952, <https://doi.org/10.1136/bmj-2022-071952>.

Wang, Zengwu, et al. "Status of Hypertension in China: Results from the China Hypertension Survey, 2012–2015." *Circulation*, vol. 137, no. 22, 2018, pp. 2344–56, <https://doi.org/10.1161/CIRCULATIONAHA.117.032380>.

⁷⁶ Xinhua. "China to Tighten Environmental Data Fraud Prevention and Control." *Xinhua*, 18 June 2017, www.xinhuanet.com/english/2017-06/18/c_136375219.htm. Accessed 26 July 2026.

Achieving clean air requires time. Some of the damage can be minimized this week by using the tools that already exist. Many cities send messages in real-time, close schools when the pollution level spikes, advise the population to avoid exercising outdoors when the situation is bad, and provide filters to people working in the open air. Beijing has implemented exactly this system: a color-coded warning system with a red alert at the top, which means that schools are closed and half of the cars stay off the roads.⁷⁷ One of the problems appeared quickly. Beijing used this system for two years before it used the first red alert in December 2015 and received a lot of negative comments about using the amber level during previous extremely polluted periods so that the government did not have to pay for closing the cities. The problem is that an effective system is hard to create. Alerts are effective only if they can trigger automatically and can all be public so that the government does not have an option to ignore the bad days. Even though it is the cheapest part of the plan since it consists mostly of messages and applications, it is entirely dependent on accurate indicators.

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⁷⁷ People’s Government of Beijing Municipality. “Heavy Air Pollution Contingency Plan of Beijing Municipality.” *Foreign Affairs Office of the People’s Government of Beijing Municipality*, 30 July 2020, wb.beijing.gov.cn/en/policy_release/others_1/202007/t20200730_1966606.html. Accessed 10 Aug. 2026.

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