

Strategic Analysis Paper

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China Continues to Confront Steep Environmental Challenges

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Key Points

- The Chinese Communist Party recognises that air, water and soil pollution are major environmental challenges that need to be addressed. It has set several goals to reduce pollution across the country.
- Reports that suggest that those goals have been achieved have been met with scepticism inside and outside China, after it emerged that the data they are based on is often inaccurate.
- A Chinese announcement to become carbon neutral by 2060 was welcomed by the international community, but China has not adequately outlined how it plans to achieve that goal. Neither has it explained how it is going to ensure that its carbon dioxide emissions will peak by 2030.
- Decades of environmental mismanagement are likely to catch up with the Chinese Communist Party, which could have deleterious long-term effects domestically. The CCP admits that its efforts to address environmental problems have failed to live up to public expectations.

Summary

Beijing recognises that there is a growing awareness of environmental mismanagement within China, especially among the urban population. For most of the last decade it has implemented a series of legal reforms to bring pollution under control. By Beijing's own admission, however, those efforts have failed to live up to the population's expectations. The Chinese Communist Party believes that climate change is one area where it can attempt to construct a claim of being a global leader. In an address to the United Nations in September, Xi Jinping announced that his country's carbon dioxide emissions would peak by 2030 and that China would become carbon neutral by 2060. As the United States withdrew from the Paris Agreement on 4

November, China is keen to establish itself as a responsible great power acting in the best interests of the natural environment. Its current track record, however, does not bode well for it achieving either of those targets.

Analysis

The Chinese Communist Party recognises that air, water and soil pollution remain major environmental and health challenges that could undermine its legitimacy. To reduce growing public discontent with pollution it introduced a range of measures to repair decades of environmental mismanagement. The CCP has found it challenging to reconcile anti-pollution efforts with its promise to deliver rapid economic development. Xi specifically ‘called for officials to be evaluated not only on the basis of how well they grew their GDP but also on how effectively they advanced environmental protection.’¹ Xi learned of the importance of finding a balance between economic development and environmental protection when he was the party secretary of Zhejiang Province. A series of “mass incidents” (widespread civil protests) took place in that province in 2005 after local residents faced a series of pollution-induced crises, including the widespread lead poisoning of children.² Like the CCP does nationally, however, provincial officials also find it impossible to reconcile economic development and environmental protection, leading to the falsification of data and inaccurate reporting.

The CCP also recognises that anti-pollution measures continue to fall short of public expectations. Zhao Yingmin, the Vice-Minister of Ecology and Environment, recently [stated](#) that while environmental conditions have improved slightly over the last five years ‘it should be clearly recognised that the quality of the ecological environment remains far from people’s expectations for a better life.’ He further stated that the ‘grim environmental trends’ have not fundamentally changed.

Air, water and soil pollution are well-known challenges in China, but the scale of those challenges was generally overlooked by state officials. According to Yanzhong Huang:

until fairly recently, there were almost no systematic data on the health effects of environmental degradation. It was not until 2010, for example, that the now widely used measures of PM2.5 – fine particles in the air that are smaller than 2.5 micrometers in diameter and capable of causing serious heart and lung problems at high concentrations – became part of the official lexicon.³

In 2013, the United States Embassy in Beijing reported that the level of particulate matter in the air had surpassed 800, far exceeding the 500-point scale used to measure air pollution internationally. The air quality of the 300 Chinese cities with monitoring stations failed to meet World Health Organization standards and two-thirds even failed to meet the lower standards

¹ Elizabeth C. Economy, *The Third Revolution: Xi Jinping and the New Chinese State*, (Oxford University Press: New York, 2019), p. 162.

² Yanzhong Huang, *Toxic Politics: China’s Environmental Health Crisis and its Challenge to the Chinese State*, (Cambridge University Press: Cambridge, 2020), p. 102-3.

³ *ibid*, p. 10.

set by Beijing.⁴ The Chinese Government asked the embassy to stop releasing air quality data, alleging that the monitoring of air quality is a sovereign power of the host state. The claim that the embassy's readings of local air pollution levels was illegal invited ridicule from Chinese citizens.⁵ According to government data, PM2.5 levels nationwide had declined by an average of 38 per cent between 2013 and 2017. There are reasons to be sceptical of that data, however, as air quality monitoring stations are often located in parks or government compounds, where they might not accurately measure air pollution levels. The Ministry of Ecology and Environment (MEE) does not have direct control over all of the monitoring stations, which enables local governments to manipulate air quality data to artificially reach their targets. In some regions, officials have tampered with monitoring equipment by spraying water on sensors, deploying large air purifiers near monitoring stations or, in some extreme cases, stuffing monitoring devices with cotton to filter out smog particles.⁶ There is growing scepticism of official air quality reports within and outside of China.

Over the past decade, Beijing has focussed on improving air quality, which is the most visible form of pollution for most urban Chinese. While air pollution is a major environmental and health problem – with [750,000 annual deaths](#) in China attributable to respiratory diseases associated with poor air quality – water and soil pollution arguably pose a greater threat.

Up to [40 per cent](#) of China's rivers are seriously polluted and 20 per cent of them are so severely polluted that they are too toxic for physical contact. The Yellow River (which is one of the country's major water sources) is [ten per cent sewage by volume](#). In April 2015, the State Council introduced the [Action Plan for the Prevention and Control of Water Pollution](#), which aimed to increase the share of potable water in seven river basins to more than 70 per cent by 2020.⁷ Chinese environmental inspectors admitted in January 2018 that, with the exception of four provinces, not enough is being done to address the serious water pollution problems.⁸ Fake data and inaccurate reporting continue to cast doubt on water pollution reports. An analysis of government data in 2014 suggested that the north-eastern provinces had performed better than any other region in addressing water pollution. It later emerged, however, that thousands of polluters in the north-east had reported inaccurate pollution data.⁹ It is not clear whether the 2020 goal has been achieved but, given that pollution levels in a major lake linked to one of those rivers [continue to rise](#), it is likely that those rivers remain severely polluted. According to a [report](#) by CGTN, a Chinese state-controlled media outlet, the 2020 goal has been met, but it also notes that the plan lacked thorough evaluation processes and the 2020 goal was too ambitious.

Soil pollution is also a major environmental and health challenge in China. The government published a [national soil survey in 2014](#) which showed that 16.1% of all soil and 19.4% of farmland was contaminated with chemical pollutants and metals such as lead, cadmium and arsenic. In total, about 250,000 square kilometres of land is contaminated and elevated levels

⁴ Economy, p. 153-4.

⁵ Huang, p. 102.

⁶ *ibid*, p. 150-2.

⁷ *ibid*, p. 106.

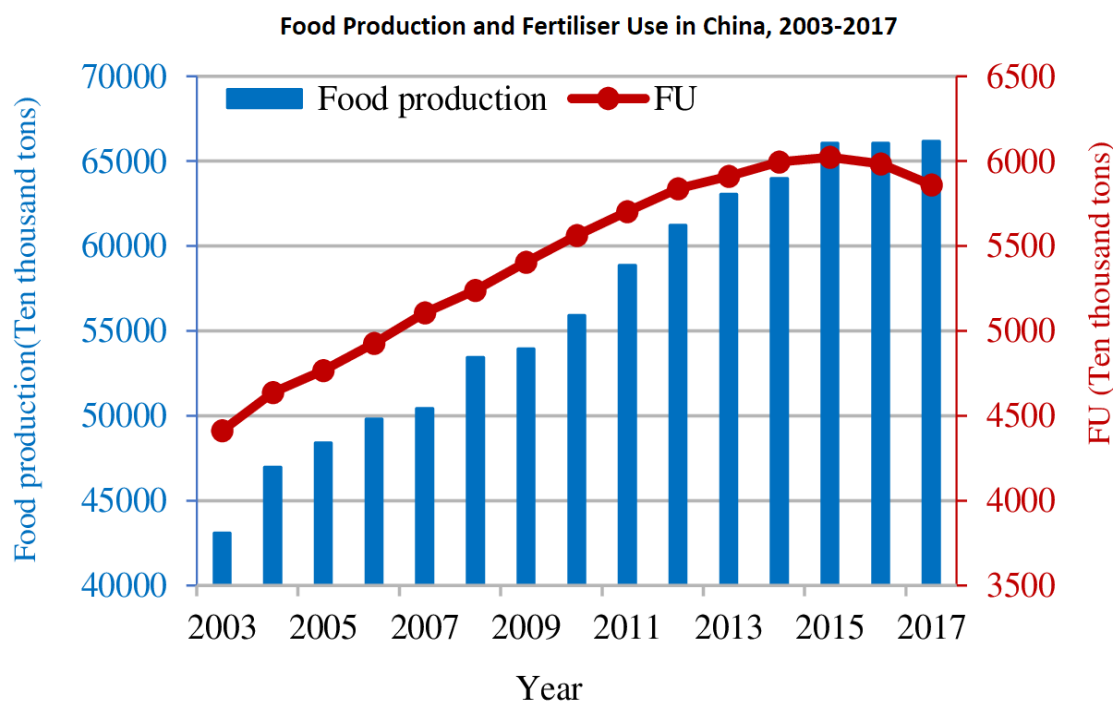
⁸ *ibid*, p. 155.

⁹ *ibid*, p. 111.

of cadmium and arsenic – which in high concentrations can cause severe health complications – were found in 40 per cent of the affected land. Government officials stated that 35,000 kilometres of farmland is so polluted that no crops should be grown on it. The State Council introduced the [Action Plan for the Prevention and Control of Soil Pollution](#) in 2016, which aimed to ensure that 90 per cent of currently polluted farmland is usable by 2020.¹⁰ According to a May 2020 MEE report, overall soil quality has [gradually improved](#), however, authorities have accused some regions of [failing to take the issue seriously](#). It is unlikely that a gradual improvement will be sufficient to reach the 2020 goal.

Emissions of nitrous oxide (N₂O), an ozone depleting greenhouse gas, have also [increased significantly over the past four decades](#), mainly due to the increased use of nitrogen fertilisers. Over the last 250 years, the concentration of N₂O in the atmosphere has increased by more than [20 per cent](#). The Chinese agricultural sector is not solely responsible for that increase – emissions from Brazil and India have also increased considerably over the past decade – but Chinese farmers use [four times more fertiliser per hectare](#) than the average farmer elsewhere. That overuse of nitrogen fertiliser has acidified soil, polluted water sources (a 2010 Chinese Government report found that farmers’ fields are a [bigger source of water contamination](#) than factory effluent) and contributed to climate change.

Developing countries are generally reluctant to reduce their fertiliser use, believing that it could reduce their food security. There is little evidence to support that belief, however, as N₂O emissions have [remained static in the US and have declined in Europe](#), while agricultural production in both regions increased. Chinese fertiliser use began to [decline after 2015](#) and food production has not diminished.



Source: Yuanmeng Ji, Huajun Liu and Yin Shi, 'Will China's Fertilizer Use Continue to Decline?', *PLOS One*, August 2020

¹⁰ *ibid*, p. 107.

In an address to the United Nations in September, Xi Jinping announced that China would reach peak carbon before 2030, and would become carbon neutral by 2060. The announcement is widely seen as a challenge to the United States, which withdrew from the Paris Agreement on 4 November. The US Democrat presidential nominee Joe Biden has committed to re-joining the agreement if he wins the presidential election, [tweeting](#) 'Today, the Trump Administration officially left the Paris Climate Agreement. And in exactly 77 days, a Biden Administration will rejoin it.' By the end of 2020, signatories to the agreement are supposed to submit the second round of Nationally Determined Contributions (which outline the measures that they will take to reduce emissions) and their strategies to reduce emissions by mid-century. Most signatories are expected to [miss that deadline](#), due to the Covid-19 pandemic.

Beijing has not indicated how it plans to achieve its new goal, but it is expected to announce new energy and climate policies in its 14th five-year plan, which will be released in March 2021.

It will be difficult for Chinese CO₂ emissions to peak by 2030. It is the largest consumer of coal and the second-largest consumer of oil. As such, it also produces the largest amount of anthropogenic greenhouse gas emissions, thereby accounting for more than one-quarter of global emissions. Fossil fuels currently supply about 85 per cent of Chinese energy requirements, with the remainder drawn from renewable sources. A [complete inversion](#) of its energy production would be required for China to meet its carbon neutrality goal.

That inversion does not appear to be forthcoming. Economic stimulus measures announced in the wake of the Covid-19 pandemic focus [primarily on high-carbon energy and infrastructure projects](#). About [250 gigawatts of coal power capacity](#) is under construction or in the planning phase – which is bigger than the entire existing coal capacity of the US or India. There are also plans to construct 22 coal-to-chemical plants, which would add another 175 million tonnes of CO₂ emissions.¹¹ The introduction of carbon capture technology or carbon offsets could help China meet the 2060 target, but in the absence of alternative energy sources it would require considerable financial expenditure. Some [estimates](#) suggest that to meet the new climate targets, China would require 80-115GW of new solar to be installed every year, alongside 36-45GW of wind power.

China is the [leading supplier of clean energy technology](#). More than one-third of the world's wind turbine manufacturing companies are Chinese, more than 70 per cent of the world's solar panels are manufactured in China and almost 75 per cent of the lithium ion batteries used in electric vehicles are produced in China. While China has deployed that technology within its own borders, it appears to be reluctant to fully utilise it as a considerable amount of its clean energy capacity remains underused or idle. In the three provinces with the best conditions for wind power generation, as much as 43 per cent of wind turbine capacity is not used. Air pollution near coastal cities is also believed to reduce the efficiency of solar panels in those regions by up to 35 per cent.¹² While China is a leader in clean energy technologies, it has not been as successful in deploying those technologies domestically.

¹¹ Economy, p. 185

¹² *ibid*, p. 181.

Very few countries are on track to meet the reduction in CO₂ emissions required to meet the goals of the Paris accord. As Joëlle Gergis, an Australian climate scientist and one of the lead authors involved in the United Nations' Intergovernmental Panel on Climate Change *Sixth Assessment Report*, recently [noted](#):

current global emission-reduction policies are estimated to result in a 3.4-3.9 degree increase in the Earth's average temperature by 2100. This represents a catastrophic overshooting of the Paris Agreement targets that were specifically developed to avoid "dangerous anthropogenic interference with the climate system". The world needs to triple current emission-reductions pledges to restrict warming to 2 degrees above pre-industrial levels. Global pledges would need to increase fivefold to restrict global warming to 1.5 degrees.

Its pledge of carbon neutrality by 2060 is unlikely to significantly contribute to the ultimate aim of the Paris Agreement – restricting warming to below two degrees by the end of the century. It is possible that Beijing will come under increased pressure to develop and implement a stronger plan from a Biden Administration. Alternatively, if President Trump is returned to office, China will continue to claim that it is acting as a responsible great power in seeking to reduce its emissions without any significant pushback from the US.

China continues to confront steep environmental challenges that pose significant threats to public and environmental health. While it has taken steps to address those challenges, senior government officials increasingly acknowledge that it has fallen short of public expectations and its own five-year goals. The 14th Five-Year Plan, which is currently under development, is expected to include new goals, but if they are as poorly-implemented as the previous ones they are also likely to be ignored and left unachieved.

Any opinions or views expressed in this paper are those of the individual author, unless stated to be those of Future Directions International.