Press release

As China's national PM2.5 levels decline, pollution moves to western areas not equipped for shift: Q1 2025 review

Beijing, 4 June 2025 - While China's national average PM2.5 concentration declined by 5% in the first quarter of 2025, ten provinces recorded year-on-year increases—all of them outside of China's priority control regions for air pollution, and most of them in the west of the country. That's according to the newly released Q1 2025 China Air Quality Analysis from the Centre for Research on Energy and Clean Air (CREA).

These developments reflect a broader spatial restructuring of pollution in China driven by the westward migration of heavy industry to areas not currently prioritised under national air quality control strategies. Originally intended to support the usage of clean energy into western industrial systems and reduce national carbon intensity, this industrial shift has been outpacing the capacity of the receiving regions to manage the environmental consequences.

For example, western region Xinjiang overtook Henan in the east to become the most polluted region in the country, with an average PM2.5 concentration of 70 $\mu g/m^3$—8% higher than the previous year, twice the national standard, and 14 times the World Health Organization's annual guideline value. Guangxi, Yunnan, and Guizhou also recorded notable PM2.5 increases of 32%, 14%, and 7%, respectively.

Weather-adjusted analysis reveals that in Kunming (Yunnan) and Urumqi (Xinjiang), rising PM2.5 levels were mainly driven by anthropogenic emissions, contributing to 12% and 9% year-on-year increases. Notably, even though overall pollution declined in Yinchuan (Ningxia), human-induced emissions still exerted the largest upward pressure, at 12.6%.

Moreover, in the first quarter of 2025, pig iron, crude steel, and non-ferrous metals production in western China rose by 10.5%, 5.8%, and 4.2%, respectively. Although the region also recorded the sharpest drop in the share of coal-fired power (–5.5%), the resulting pollution from energy-intensive processes and limited environmental oversight has likely offset much of that

progress. Meanwhile, eastern provinces experienced a near-universal decline in output of energy-intensive products.

Central and western provinces off track to meet national pledge to eliminate severe air pollution by year's end

Although China earlier this year essentially pledged to eliminate heavily polluted days by the end of 2025, increases in regions like the Northwest and the middle reaches of the Yangtze River signal these regions are currently not on track to meet this goal. For example, Ningxia recorded the largest national rise in heavy pollution days by 3 percentage points, with meteorologically adjusted data showing a 13% human-driven increase in PM2.5 in its capital, Yinchuan. Persistent emissions from transportation and industry were key drivers: Ningxia's highway freight volume grew by 8% year-on-year, while pig iron, crude steel, and non-ferrous metal production soared by 2,283%, 39%, and 14%, respectively.

These trends point to a growing divergence in industrial pathways and highlight the urgent need for air quality governance that can respond to shifting emission patterns on a national scale. Effective mitigation must address root causes by accelerating industrial upgrading and driving regional clean energy transitions to curb emissions at their source.

'As China's industrial landscape continues to evolve, so must its air quality governance. A nationally coordinated strategy is essential to ensure that industrial transformation and environmental protection advance together—protecting public health, enabling regional resilience, and securing the gains made in pollution control,' said Chengcheng Qiu, China Policy Analyst at CREA.

'It's important for China's fast-growing provinces to avoid the pattern of "develop first, clean up later". Considering the health costs of air pollution, it's better to make development clean from the onset—and the technology and the solutions exist to do this,' said Lauri Myllyvirta, Lead Analyst at CREA.

CREA's policy recommendations include:

- **Integrate western and central regions into core air quality management**. These non-key regions should be explicitly included in the upcoming 15th Five-Year Plan, with tailored pollution targets, regulatory oversight, and capacity-building support. Air quality should be embedded into China's broader industrial transformation agenda as a key metric of regional resilience and competitiveness.
- **Enhance environmental safeguards and oversight.** Strengthen environmental impact assessments and increase on-site inspections and enforcement in newly industrialised regions to ensure compliance with air pollution standards.

- **Accelerate clean energy transition.** Promote faster deployment of clean power infrastructure and industrial electrification, particularly in coal-heavy sectors like steel and coal chemicals, to replace carbon-intensive processes.
- **Prioritise air quality targets when evaluating regional development performance.** Incorporate clean air indicators into assessments of local public health, talent retention, and economic competitiveness. National guidance on performance-based air quality metrics can motivate local governments to prioritise sustainable development.

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Note to editors

The publication related to this press release is available here.

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About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution. We use scientific data, research and evidence to support the efforts of governments, companies and campaigning organisations worldwide in their efforts to move towards clean energy and clean air.

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