SOLUTIONS FOR CLEANER AIR IN PRC
TO FIX THE AIR POLLUTION IN THE REGION

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Solutions to Fix the Air Pollution

Upgrade the Air Pollution Control Policy Framework

China’s Policy Framework for Air Pollution Prevention and Control

Changes in GDP, energy consumption, private vehicle ownership and air quality in 74 cities between 2013 and 2018

SOURCE: CHINESE ACADEMY OF ENVIRONMENTAL PLANNING

Clean Air Asia, 2018
## Key Areas to Focus

**Effective Emission Reduction Measures**

- **Strengthen industrial emission standards**
  - Coal-fired power, iron and steel, cement, flat glass: 99% and 93% equipped with de-S and de-N devices; 71% meet "ultralow emission" standard; 88% steel sintering machine equipped with de-S devices; 90% with high efficiency de-S devices; 92% equipped with de-N devices; 87% with high efficiency de-N devices.
  - 25 GW of coal-fired power generation capacity were phased out.
  - 62,000 "small and polluting" enterprises were phased out or rectified.

- **Phase out small and polluting factories**
  - Iron and steel, cement, flat glass: Eliminated 130 million ton outdated capacity; Eliminated 70 million ton outdated capacity.
  - Emission standard: Halved of operating capacity meet the new emission standard.

- **Phase out outdated industrial capacities**
  - Emission standard: Phased out 115 thousand small boilers; Phased out 85 thousand small boilers.

- **Upgrades on industrial boilers**
  - Phase out small and polluting factories: Upgraded to clean stoves; Coal substituted by NG and electricity in 6 million households.

- **Promote clean fuels in the residential sector**
  - Phase out small and polluting factories: Applied washed clean coal; phasing out old cars.

- **Strengthen vehicle emission standards**
  - Eliminated 15 million old vehicles; Eliminated 5 million old vehicles.

**Source:** Zhang et al. PNAS 2019

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**Fig. 1.** Summary of major air pollution control measures taken between 2013 and 2017. De-S, desulfurization; De-N, denitrification; NG, natural gas.

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<thead>
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<th>2013</th>
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**Population-weighted PM$_{2.5}$ concentration**

(Unit: µg/m$^3$)

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**Legend:**
- **Strengthen industrial emission standards**
- **Upgrades on industrial boilers**
- **Phase out outdated industrial capacities**
- **Promote clean fuels in the residential sector**
- **Phase out small and polluting factories**
- **Strengthen vehicle emission standards**
Bring Solutions to Scale

Synergize the Clean Air and Climate Policies

1. Xue et al. SCIENCE CHINA Earth Sciences 2019;
Further Discussion

**Lessons learned**

- **Foundation for Policy Making:**
  - Role of academic studies—provide evidence and information
  - Science-based decision and policy making

- **Strong political will and community willingness:**
  - Top-down and bottom-up
  - Information disclosure and public participation

- **Long term perspective and integration:**
  - Long term expectation: enterprises and consumers
  - Address air pollution under the overall framework of sustainable development
  - Synergistic effect

- **Combination of policy tools and action package:**
  - Command & control-market based instruments-information disclosure-public participation-public Interest Litigation
  - Implementation-enforcement-monitoring-supervision-evaluation

**Issues of concern**

- Least cost solution, cost burden and distribution effects
- Incentives for action

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