

Restoring Blue Skies: Key Insights from 2014 Air Quality Workshop

Paulson Institute, Energy Foundation
and Energy Innovation

April 2015

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This document represents key insights developed by experts at the Restoring Blue Skies Air Quality Workshop held in Beijing on September 17-18, 2014 co-organized by the Paulson Institute, Energy Foundation, Energy Innovation and Chinese partners. Participants included 80 leaders from 42 Chinese and international organizations. All of our institutions are committed to accelerating clean air in China. In 2015, the Paulson Institute is doing further research and writing a series of reports expanding on how market forces can make the greatest contribution to improving air quality.

I. INTRODUCTION

Clean air is a pre-requisite for a strong economy. Clean air can help reduce public health costs, improve crop harvests, reduce damage to materials and infrastructure, and decrease clean-up expenses. Clean air is also crucial for companies to attract world-class business talent.

This memorandum has two parts:

1. The first part specifies *ten guiding principles* for an effective air quality program
2. The second part outlines *how* China can achieve clean air through *four key areas*:
 - A robust air quality management system;
 - A well-positioned and regulated market with a strong incentive system;
 - An enforcement program that guarantees full compliance; and
 - A series of policies that target sectors where adjustments can achieve quick results

II. TEN GUIDING PRINCIPLES FOR CLEAN AIR

The experts at the conference agreed on a list of core requirements for a successful air quality program at both the national and regional levels:

1. **Establish a sound local air quality management structure:** Every region needs an unambiguous clean air authority. Large regions covering several cities (e.g. Jing-Jin-Ji region) should have a unified authority with the ability to set standards, issue permits, and enforce reductions;
2. **Ensure sufficient human and financial resources:** Public and private expenditures on pollution control must be sufficient to achieve the ultimate objective of clean and healthy air. This will require increased budgets, better planning and analysis, and more high-quality inspectors. Proper design of

enforcement programs can minimize the chance of evasion or corruption;

3. **Apply state-of-the-art scientific analysis:** Science must guide air pollution control programs to set ambient concentration levels, identify and track pollution sources, understand atmospheric chemistry, find the cheapest reduction opportunities, and track progress;
4. **Establish emergency episode forecasting and response system:** The government should respond promptly and effectively to major air quality episodes to minimize serious public health impacts. Measures should be established in advance for rapid response;
5. **Develop control measures and prioritize based on cost-effectiveness:** The government should pursue the most cost-effective measures first to sustain government, public, and private support for air quality regulations;
6. **Require the use of Best Available Control Technologies (BACT), the stringent standard required by the US Environmental Protection Agency:** Rapidly moving to a BACT standard can accelerate clean-up, give industries a clear pathway, and accelerate technology development;
7. **Optimize co-benefits for air pollutants and GHGs (greenhouse gases) when identifying and selecting control policies, measures, and technologies:** The integration of policies that combine air pollutant and GHG reductions will be cheaper and more effective than pursuing separate solutions for air pollution and climate change;
8. **Ensure adequate implementation and enforcement with incentives and penalties:** Penalties for non-compliance should be substantial enough to discourage misbehavior and to prevent bad actors from gaining a competitive advantage;
9. **Enhance transparency and encourage public participation:** The public should be kept informed to generate trust in the government's air quality decisions;
10. **Conduct regular monitoring and evaluation for continuous improvement:** Progress should be regularly monitored, using quantifiable metrics that are confirmed by independent air quality measurements. Plans should be updated every three to five years to reflect new information.

III. KEY INSIGHTS FROM WORKSHOP EXPERTS

To achieve the principles outlined in section II, the experts at the workshop provided the following insights:

1. Key steps to align fiscal policy with air pollution goals

Fiscal policies, including taxes, pricing mechanisms and subsidies are critical to unleashing market forces to improve air quality.

This will require:

- Removing fossil fuel subsidies;
- Accelerating the implementation of resource tax reform for coal by increasing the tax rate;
- Significantly increasing emissions fees to reflect pollution costs. Beijing recently raised emissions fees by 11 times and Tianjin by 7 times – which shows that previous levels were much too low. Overall, the emissions fee can be increased by at least 5 times. For heavily polluted major cities, the rates of increase can be much higher. This can be factored into the environmental tax system that is already under development;
- Adjusting electricity prices so that they reflect the actual costs of production, including the pollution control costs.

2. Requirements for a robust air quality management system

- Setting up a periodic air quality standard revision process that is based on health assessments;
- Creating a mandatory air quality attainment system that is backed with solid emissions inventory data, enforces permitting for every major source, and requires reductions;
- Imposing deadlines for attaining air standards and including a forcing mechanism that requires each

level of government to push the technology envelope beyond business-as-usual;

- Increasing the government personnel for air quality management – including scientists, permit staff, and enforcement officers. For example, the U.S. EPA has 1,400 government staff focused on air quality. China’s MEP only has 400 for all environmental programs in a country with a population three times that of the U.S.

3. Steps required to achieve full enforcement

Full enforcement of existing and new laws is required to attain clean air. With the Communist Party’s 4th Plenum theme of building the rule of law, it is time to significantly strengthen the authoritative status of clean air laws and regulations and ensure strong enforcement.

This will require:

- Instituting fines that are large enough to deter bad behavior. The fines should be high enough to recover any economic benefits gained through the polluting activity;
- Making sure that the probability of detection is high by using random checks, increasing enforcement officers, and also requiring self-monitoring, self-recordkeeping, and self-reporting;
- The government should consider a reward for reporting violations – such a system would mobilize public efforts to help the government to enforce the laws and regulations.

4. Steps needed to achieve quick results in key sectors

Finally, there are a number of key policies that would leverage immense benefits in the most pollutant- and carbon-intensive industries. Through a coal cap, good transportation and urban form policies, energy efficient buildings, and vehicle emission standards, China can reduce air pollution and climate change at the same time.

<p>Coal Cap</p>	<ul style="list-style-type: none"> • <i>Energy structure changes are critical for China’s long-term air quality improvements:</i> China has committed to peak carbon emissions by 2030 and has developed a coal consumption cap target for 2020. These efforts represent great progress for China to address air pollution. By 2030, coal could be less than 50% of China’s energy structure. It is also technically viable to have renewable energy supply 80% of the country’s electricity by 2050; • <i>A coal cap can be achieved by ramping up energy efficiency and renewable energy:</i> Renewable portfolio standards and grid integration are critical near-term policies to enable long-term renewable energy development.
<p>Transportation and Urban Form</p>	<ul style="list-style-type: none"> • <i>Build small blocks and dense networks of bike and walking paths:</i> A highly permeable street structure can cut transportation energy use by half; • <i>Develop an auction system for private car license plates for mega-cities:</i> Use the revenue to invest in public transportation and non-motorized systems. Driving restrictions in Beijing led to a 20% reduction in air pollution. Moreover, an auction system in Beijing could lead to an increase in government revenue of 36.7 billion RMB.
<p>Buildings and Industry</p>	<ul style="list-style-type: none"> • <i>Institute strict building codes:</i> 75% energy reduction in new construction is possible through strong building codes; • <i>Install BACT in all the new air emission sources:</i> Retrofit and upgrade the existing sources to BACT’s level.
<p>Fuel Standards and Vehicle Retrofits</p>	<ul style="list-style-type: none"> • <i>Jump to Euro 6 fuel standards and skip Euro 5:</i> HD Trucks and off-road motor vehicles should be set to Euro 6 by 2018. Euro 5 does not include diesel particulate filters. There is no reason to burden the country with millions of Euro 5 trucks; • <i>Develop a large scale retrofit program to install diesel particulate filters for in-use diesel vehicles and off-road equipment:</i> These types of retrofits were done in California, Germany and other parts of the world and could be a very effective measure to significantly reduce emissions. Clean diesel is a prerequisite, and China already has a fuel quality roadmap and is on the trajectory to provide 10ppm clean diesel.