

## Is It Safe? Pollution And Food Safety

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# Bringing Back The Blue Sky Days

By Calvin Quek

*After Beijing's infamous Airpocalypse, Premier Li Keqiang declared war on air pollution. Official data show surprising progress in the past year. To sustain this progress, the government must embrace more systematic and market-oriented approaches.*

Beijing's skies have long been dirty, but "Airpocalypse" was something else. On January 13, 2013, the average concentration of fine particles in the capital's air hit a record of 755 micrograms per cubic meter, about double the level for a really bad Beijing smog and more than 30 times the World Health Organization's upper limit for safe air. The choking darkness at noon made global headlines and sparked domestic outrage—including at the normally sedate National People's Congress, whose nearly 3,000 deputies loudly booed their incoming environmental protection committee at a meeting in March that also took place under a thick blanket of smog.

Beijing's bad air day crystallized a climate of citizen discontent over environmental degradation. Research by Nankai University found that 90,000 "mass incidents" were caused by pollution concerns in 2011 alone, and a 2014 study by the Chinese Academy of Social Sciences showed that environmental issues were the crucial impetus for the biggest public protests. But "Airpocalypse" also spurred the government into long-delayed action. Premier Li Keqiang ordered his bureaucrats to "declare war" on pollution. D-Day came on September 13—exactly eight months after the capital's skies darkened—when the State Council and six key ministries released a comprehensive strategy against air pollution. Enforcement followed, with the closure of coal-fired power plants and other heavy industrial polluters, especially in Beijing and surrounding Hebei.

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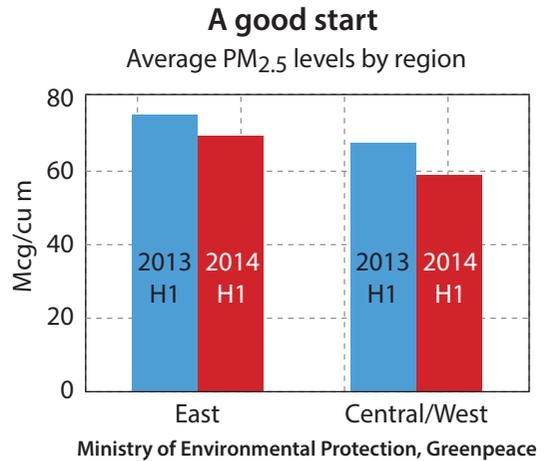
Official data suggest the war is going well: the national average concentration of fine particles fell 9% in the first half of 2014 compared with the year earlier period, to 65 micrograms—a big improvement, though still far above the aspirational national standard of 35mcg (which in turn is still higher than WHO’s 25mcg ceiling). The progress is probably exaggerated: it is hard to believe that nine months of enforcement could produce such good results so quickly, and there are plenty of ways for local governments to fudge the numbers. But there is no doubt localities face intense and rising pressure to clean up their skies.

Can the regulators keep it up? The answer is a qualified yes. It took the Allies just a year after landing in Normandy to sweep away the Nazis, but broad success in China’s fight against air pollution will take longer. Beijing is finally serious about tackling the problem, but it still relies too much on clumsy administrative sanctions, rather than systemic measures to shift the economy on to a greener path. And there is real risk that the cleaning the air in rich coastal cities like Beijing and Shanghai will simply lead to a transfer of pollution to poorer inland areas.

**This time, we mean it**

The air pollution strategy is a serious document. Although China suffers from various air pollution problems, the current campaign focuses on PM<sub>2.5</sub>—fine particles less than 2.5 microns in diameter, which are the biggest contributors to north China’s smog and by far the most serious health risk. The strategy set ambitious PM<sub>2.5</sub> reduction targets for greater Beijing, greater Shanghai and Guangdong’s Pearl River Delta region; more modest targets followed for most other provinces.

The plan makes some effort to move beyond the top-down enforcement approach that traditionally characterizes Chinese government campaigns. Of its six focus areas, three directly address the key sources of PM<sub>2.5</sub> in the usual way, but two relate to improving the incentives of local officials and—perhaps more surprisingly—creating a bigger role for civil society organizations. The sixth requires major cities to set up emergency response plans to deal with one-off events like Beijing’s Airpocalypse.



**From each province according to its ability**

Target annual decrease in key pollutants, 2014-17

PM2.5	-25%	Beijing, Tianjin, Hebei
	-20%	Shanghai, Jiangsu, Zhejiang, Shandong, Shanxi
	-15%	Guangdong, Chongqing
	-10%	Inner Mongolia
	PM10	-15%
	-12%	Gansu, Hebei
	-10%	Sichuan, Liaoning, Jilin, Hunan, Anhui, Ningxia
	-5%	Guangxi, Fujian, Jiangxi, Guizhou, Heilongjiang
Unspecified improvement		Hainan, Tibet, Yunnan

Ministry of Environmental Protection

The first three goals are to eliminate old and excess capacity in polluting heavy industries (notably steel, cement, glass and bricks) and the installation of environmental-protection equipment in the capacity that remains; accelerating the shift away from coal-fired power plants to cleaner gas-fired ones; and imposing higher emission and fuel-efficiency standards on motor vehicles. All these objectives have been around for a decade or more; the new pollution strategy simply sets more aggressive targets and invites one to accept that Beijing is now really serious about enforcing standards that it had difficulty making stick in the past.

Of the two incentive-based goals, one is a hoary chestnut: making environmental targets a bigger part of local officials' performance reviews. This has been talked about, and allegedly implemented in some places, over the past decade, with little visible impact. Officials still tend to assume they will be judged on economic growth and maintaining social stability, and that tricky, growth-retarding policies like environmental protection are not in their interest. The new rules, which the government published in May 2014, provide very specific benchmarks for assessing officials' performance in reducing air pollution. This is good, but still leaves unanswered the crucial question, which is the relative weight of environmental and economic criteria in overall evaluations.

The more interesting goal is increased transparency. In essence, the government is pushing for more air-quality data to be collected and released, and seems comfortable with non-governmental organizations (NGOs) using this data to put pressure on polluting companies and local

## How reliable are the numbers?

In August the government released its first PM<sub>2.5</sub> statistics since the beginning of the war on air pollution, and the progress was dramatic. Twenty-three of the 31 province-level jurisdictions reported declines in their average PM<sub>2.5</sub> level in the first half of 2014 compared to a year earlier. Fifteen provinces reported declines of more than 10%. The average level for all provinces dropped by 9.6%, to 65 mcg per cubic meter.

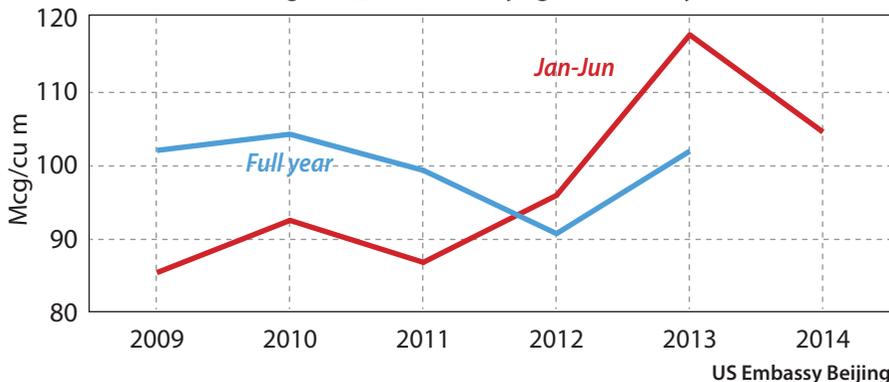
Skeptics have grounds for doubting these figures. For one thing, the number of air quality monitoring stations more than doubled between January 2013 and January 2014. So the year-on-year comparison is clearly not like-for-like. Optimists can argue that the more comprehensive coverage gives us a more accurate, and somewhat lower, baseline. Improved accuracy, rather than reckless polluting, probably also explains why Anhui's reported PM<sub>2.5</sub> level rose by nearly 15%.

Another possibility is that localities deliberately moved their monitors into more salubrious locations in order to produce lower numbers. This may have occurred, but it's worth noting that independent monitoring stations run by the US Embassy and consulates roughly confirm the official figures. These stations found that PM<sub>2.5</sub> levels in Beijing, Shanghai and Chengdu fell by 11%, 14% and 16% respectively in the first half of 2014, while the level in Guangzhou rose a modest 1%.

Alas, the US Embassy's time-series data for Beijing, which go back to 2009, show that this year's gain only partly reverses a severe deterioration in 2013 when the PM<sub>2.5</sub> level rose by more than 12%. The average level for the first half of this year is about the same as the average for 2010. China may be making progress against pollution, but it clearly has a long way to go.

### A step forward after a step back

Average PM<sub>2.5</sub> level in Beijing (US Embassy)



governments. The number of air-quality monitoring sites has more than doubled, to 161 in January 2014 from just 74 a year earlier, and amended environmental regulations now mandate more information disclosure by polluting companies. Local NGOs such as the Institute of Public and Environmental Affairs have seized on this opening to push out more information to the public via the internet and mobile-phone apps that graphically display pollution data from across the country.

Another important element of the pollution plan is an effort to integrate it with the national energy plan, which makes sense given that coal burning contributes 45-50% of national PM<sub>2.5</sub> emissions, and transport fuel emissions account for another 15-20%. In theory, huge progress toward reducing PM<sub>2.5</sub> emissions could be achieved by shifting the national energy mix away from coal and towards alternative fuels (such as natural gas, nuclear and renewables), and by improving the efficiency of the transport fleet. Earlier this year, the targets for replacing coal use with natural gas and renewables were increased, and specifically aligned with the 2017 PM<sub>2.5</sub> emissions target.

### **The problem with targets: hitting them**

This is all well and good, but Beijing has promulgated plenty of energy and environmental plans and targets in the past, and its record in hitting them is by no means perfect. The country fell short of meeting its much heralded energy-intensity reduction target of -20% in the 11th Five Year Plan (2006-10), which was the focus of intensive enforcement effort; and it only got as close as it did (-19%) by temporarily shutting down large swathes of energy-hogging factories in the plan period's closing months. A starker example is the "Three Red Lines" water policy set out in 2012, requiring provinces to meet strict water consumption, quality and intensity targets by 2017. Xinjiang breached its water-consumption cap in the second year of the program, 2013.

There are reasons to hope the war on PM<sub>2.5</sub> could fare better. One is that it is a huge political priority for President Xi Jinping and Premier Li Keqiang, because of mounting pressure from the urban middle class. A second is that large gains can be achieved relatively quickly from a few straightforward actions. The reductions in PM<sub>2.5</sub> levels in the first half of 2014 (to the extent they are credible, see box on previous page) seem to have come mainly from closure of industrial capacity and coal-fired power plants.

But the industrial-closure approach creates the temptation to shift pollution from more to less visible locations. This is evident from a com-

### Moving targets

Targets for changes in China's energy structure, 2013-17

	2013 actual	2015 (Energy five-year plan)	2017 (Air pollution plan)
Coal, % of primary energy consumption	66-67%	65% +/-	< 65%
Natural gas, % of energy consumption	5.9%	7.0%	9.0%
Non-fossils, % of energy consumption	9.8%	11.5%	13.0%
Natural gas supply, bn cu m	121	250	330
Coal-derived synthetic natural gas, bn cu m	3	9	32
Non-fossil electricity generation capacity, GW			
Hydropower	280	290	330
Wind	76	100	150
Solar	18	35	70
Nuclear	15	40	50

Greenpeace

parison of Hebei and Jiangsu. Hebei, which surrounds Beijing, endured a draconian clean-up of its steel, power and coke industries and saw its reported PM<sub>2.5</sub> level fall by 7% year-on-year in the first half of 2014; Beijing's level fell 10% (See "Cleaning Up Coketown," *China Economic Quarterly*, March 2014). These figures are reasonably consistent with power-consumption data and with the visible reduction in the number of dire smog days in Beijing.

But Jiangsu, in east China, was one of eight provinces reporting an *increase* in PM<sub>2.5</sub> levels. This appears to have been a direct result of a heavy industrial boom: the province's industrial production rose 10% in the first half of 2014, and steel production grew 8%. Press reports suggest that as steel plants closed in Hebei, new production fired up in northern Jiangsu. In other words, the steel industry's PM<sub>2.5</sub> emissions are being moved around, but not eliminated.

Another, more intricate dilemma could be brewing in Xinjiang. Reducing reliance on coal-fired power plants depends on finding alternative fuels, mainly gas. To accelerate gas adoption while still making use of the nation's abundant coal, the government is pushing for a 10-fold increase in production of coal-derived synthetic gas, to 32bn cu m by 2017. Much of this is likely to be produced in arid Xinjiang, which has large coal reserves. Unfortunately, conversion of coal to gas is a water-intensive process. It is thus possible that the solution to air pollution in the east will insidiously turn into a water scarcity problem in the west.

### **The problem with systems: building them**

Examples like this suggest that a more systematic approach than the “strike hard” enforcement tactics that Xi and his colleagues favor. Anti-pollution mechanisms can be thought of as falling broadly into four baskets:

- **Administrative:** forced closure or consolidation of heavy industrial plants; mandated adoption of non-coal fuels; more stringent emissions and fuel efficiency standards in the transport sector.
- **Regulatory and legal:** increased pollution monitoring and data disclosure; stronger environmental laws and regulations.
- **Market:** higher taxes on coal and primary energy more generally; carbon trading markets.
- **Political and institutional:** strengthening and better funding the Ministry of Environmental Protection (MEP) and local environmental protection bureaus.

Historically, China has relied heavily on administrative measures, while doing a poor job with regulatory, market and institutional levers. The current war on pollution is so far not much different: most action has come through administrative enforcement. More needs to be done to embed pollution control in China’s economic and political systems.

Little progress has been made on market mechanisms: a higher tax on coal, and a new comprehensive carbon tax, have been discussed for years but there is no sign of imminent implementation or either. Experimental cap-and-trade programs, with markets for carbon emission permits, are piloting in seven cities, but the chances of expanding beyond the pilot stage any time soon are dim. MEP remains bureaucratically weak and under-resourced, and the concrete impact of a revised Environmental Law (to take effect in January 2015) is unclear.

There are two bright spots. One is the move towards greater collection and disclosure of air pollution data, and the willingness (so far) to let NGOs use this data to gin up public pressure against polluters. A second is the recognition that air pollution is a regional issue that cannot be solved within the limits of individual administrative jurisdictions. This is evident in the creation of a regional air pollution control zone encompassing Beijing, Tianjin and Hebei as part of a broader economic development plan for the region (the so-called “Jing-jin-ji Megalopolis”).

Yet even here caution is advisable. There is still wide variance in both the availability and reliability of air pollution data, and it remains to be seen how long Xi’s government (which in general has tried to tightly

control both the media and civil society) will tolerate unregulated citizen pressure on polluters. And outside the Beijing-centric Jing-jin-ji area, there is so far no credible instance of a regional integration plan.

Adding it all up, the likely verdict is that like many items on Xi Jinping's reform agenda—anti-corruption, SOE restructuring, residence permit reform—the war on pollution will end neither in outright victory nor defeat. The key difference between this “war” and previous environmental efforts is that this time the government acknowledges that air pollution is not simply a byproduct or necessary evil of economic growth, but rather is an exemplar of unhealthy trends that directly threaten China's ability to keep its economy growing over the next couple of decades. The “war” metaphor, and serious enforcement action, seem confined to smog, while the equally serious problems of water and soil pollution draw far less attention. Without a change in mindset, China risks winning a partial victory in the air, while allowing less visible environmental problems to worsen.