Clean Air Scorecard Helps Clear the Air in the People's Republic of China

BACKGROUND

Air pollution has reached alarming levels in the People's Republic of China (PRC). In some cities, air pollution indices have reached 500, the highest level set by the country. Likewise, the levels of particulate matter less than 2.5 microns in diameter (PM$_{2.5}$) in some parts are over 20 times higher than the safety levels outlined by the World Health Organization (WHO). This pollutant is one of the worst since it can penetrate deep into the lungs.

The PRC has been addressing the issue of air pollution at the national level by integrating its policies on air quality management with those on climate change mitigation. At the local level, however, cities constantly face insufficient information on air quality management since many environmental protection bureaus are wary of releasing news and sharing experiences on air pollution. This has resulted in policy gaps, such as the lack of monitoring standards on air quality management, and insufficient measures to reduce air pollution.

In 2010, the Asian Development Bank (ADB), through Clean Air Asia, introduced the Clean Air Scorecard Tool (CAST) to the PRC, along with several other Asian countries, to accelerate air quality management initiatives. The CAST was developed by Clean Air Asia under the Sustainable Urban Mobility in Asia program, a flagship initiative of ADB to improve air quality management in Asian cities. Since its development, the CAST has been applied in 19 Asian cities in nine countries.

APPROACH

Clean Air Scorecard Tool. Traditionally, air quality management in cities was evaluated using good versus bad list analysis, i.e., “100 Dirtiest Cities” or “Top 10 Cities with Best Air Quality.” While these lists serve their purpose, they were generally subjective and unable to provide direct inputs on how cities can improve.

In contrast, the CAST, renamed Clean Air Management Assessment Tool or CAMAT during its pilot in the PRC, is an objective and comprehensive tool that, instead of judging and ranking cities based on air pollution alone, looks at existing capacity, policies, and measures as these are better indicators for their future levels of air pollution and greenhouse gas emissions. It is an internationally peer-reviewed tool that provides cities with a way to comprehensively interpret and assess air pollution levels, air quality management capacity, and clean air policies and actions. It helps cities reduce air pollution levels by identifying areas for improvement in all facets of air quality management. Its output, the City Clean Air Report, also contributes to an objective air quality information exchange and sharing among cities.

The CAST is an Excel-based tool that gives an overall clean air score ranging from 0, the lowest grade, to 100. It has three individual indices: on air pollution and health, on clean air management capacity, and on policies and actions. Each index consists of relevant questions for which points can be allocated, and scores for each index can range from 0 to 33.3.

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1 Clean Air Asia, formerly Clean Air Initiative for Asian Cities, was established in 2001 by ADB, World Bank, and United States Agency for International Development to promote better air quality and livable cities. It is a United Nations-recognized partnership of 250 organizations in Asia and eight countries worldwide.

2 These are Visakhapatnam, India; Jakarta, Indonesia; Kathmandu, Nepal; Quetta, Pakistan; Cagayan de Oro, Iloilo, and Manila, Philippines; Foshan, Guangzhou, Hangzhou, Jinan, and Zhaoqiang, PRC; Colombo, Sri Lanka; Bangkok, Chiang Mai, and Korat, Thailand; and Bac Ninh, Can Tho, and Ha Noi, Viet Nam.


Higher scores mean better air quality, policies, and measures. Cities are then categorized according to their score. After all questions are answered, the tool generates a report, which shows the results for each index and an overall clean air score.

**Piloting in Hangzhou and Jinan.** A collaborative effort among the PRC’s Ministry of Environmental Protection (MEP), environment protection bureaus, the Energy Foundation, and Clean Air Asia rolled out the pilot scorecard application in the cities of Hangzhou and Jinan in July 2010, using 2008 as the base year. Hangzhou and Jinan were chosen as pilot sites since they were among the cities with air pollution levels registering above WHO prescribed guidelines.

During the pilot, parallel application studies were conducted in the two cities. Several site visits were also done to enable both cities to understand how the tool was used. During the actual application of the tool in September 2010, data were gathered from the cities based on the questions under the three indices of the tool.

For the air pollution and health index, the cities were queried on seven pollutants—particulate matter (PM$_{2.5}$ and PM$_{10}$), sulfur dioxide (SO$_2$), nitrogen dioxide (NO$_2$), carbon monoxide (CO), and lead (Pb).

For the clean air management capacity index, the cities expounded on their capacity to determine sources of pollution, assess air quality status, estimate impacts, and reduce air pollution and greenhouse gas emissions.

Finally, for the clean air policies and actions index, the cities' national and local policies and actions used to address air pollution were assessed.

After evaluating and summing up the results from all three indices, the scorecard gave an overall rating of “good” to both Hangzhou and Jinan.

**Sharing of Pilot Experience.** The scorecard’s findings showed where both cities needed to improve. For instance, Hangzhou’s air pollution and health status was “very poor” but it rated “excellent” in the other two indices. Jinan’s air pollution and health status was "critical" but its clean air management capacity and policies were "excellent." Both were classified as "maturing (II) clean air management" which means that the key components of their clean air management are complete and integrated with other major sectors such as transport and energy.

These findings were shared with 66 other cities in December 2010 in a national-level workshop jointly organized by World Bank, the PRC’s MEP, Energy Foundation, and Clean Air Asia to demonstrate the tool’s potential to help cities reduce air pollution and improve air quality management.

**RESULTS**

**Direct Learning.** Through the pilot run, Hangzhou and Jinan were able to identify concrete measures to reduce air pollution. Hangzhou, for example, found out that it should include particulate matters and greenhouse gases in its emission inventory, and formulate smog alarm plans. Jinan, on the other hand, learned that it should prioritize roadside monitoring and ambient monitoring of PM$_{2.5}$, and conduct studies on air pollution impact on health and other sectors (agricultural, tourism, and economic), among others.

The scorecard report has become an important knowledge-sharing tool. It tracks the dynamic changes of air quality and analyzes the trends. The reports on Hangzhou and Jinan are now being shared widely to strengthen partnership between the government and the public by fostering air quality management information transparency. Through this, the public may learn to trust their city's willingness and capacity to manage air quality and reduce greenhouse gas emissions. It may also encourage other cities to replicate the tool’s application.

**Scaling Up.** Given the positive reception to the scorecard and its success in the PRC and several Asian cities, ADB plans to extend its application Asia-wide as a vehicle to promote knowledge exchange and cooperation among Asian cities. ADB is considering a regional development technical assistance to identify well-performing cities in air quality management in Asia and help them disseminate their experience to cities that struggle with poor urban air quality. The CAST will provide an objective and transparent way for cities to share learning and measure improvement in air quality management experience. Hopefully, this will happen soon so that the application can be scaled up to ensure clearer skies in Asian cities.

**Related Link**


*A "good" score means key components of clean air management are complete and there are some integration with other major sectors (e.g., transport, health, and energy sectors), policies and actions have achieved some success in reducing air pollution and greenhouse gas emissions but air quality levels still exceed healthy levels prescribed by the WHO, and management efforts in all sector sources need to be intensified to further bring down emissions.*

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**KNOWLEDGE CONTRIBUTORS**

**Vijay Joshi** (vjoshi@adb.org) is the focal person for air quality management within ADB. He is supervising the development of a Good Practice Guidance document on improving air quality monitoring in Asian cities with Clean Air Asia.

**Lu Fu** (lu.fu@cleanairasia.org) is an expert in policy and regulation analysis of environmental issues. She leads the implementation of Clean Air Asia’s Program in the PRC.

**May Ajero** (may.ajero@cleanairasia.org) manages projects and implements knowledge management activities of Clean Air Asia relating to air quality and co-benefits. She has cowritten several publications on air quality management and designed the Clean Air Scorecard.

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