



INFORMATION NOTE

Clean Air Management Assessment for Cities – Clean Air Scorecard

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1. Background – Air Pollution Challenge in Asian Cities

Seven out of 10 cities in developing Asian countries have unhealthy levels of air pollution, when measured as annual levels of particulate matter with size range of not greater than 10 microns (PM10). Recent scientific understanding further highlights the pressing need to address air pollution. The World Health Organization (WHO) estimates that every year, 3.7 million deaths are attributable to outdoor air pollution and 2.6 million of these are in South East Asia and the Western Pacific Region. For the first time, outdoor air pollution has been identified to be among the top 10 risks worldwide and among the top five or six risks in the developing countries of Asia. In 2013, the International Agency for Research on Cancer (IARC) of the WHO declared exposure to outdoor air pollution, especially particulate matter, as carcinogenic to humans.

The challenge in addressing the issue continues as hundreds of millions of people will be added to Asian cities in the next decades. Over 50% of the population now lives in cities, where exposure to roadside air pollution is high. Over the next 30 years, another 1.1 billion people are expected to be living in cities.

A systematic and integrated air quality management approach is necessary to address the growing air pollution problems. Unfortunately, the status of air quality management in Asian cities vary widely and have not developed quickly enough to respond to the changing urban landscape and evolving challenges in reducing air pollution.

2. Clean Air Scorecard Tool Development

In 2010, Clean Air Asia, with support from the Asian Development Bank (ADB) and Swedish International Development Cooperation Agency (Sida), developed the Clean Air Scorecard Tool under the Sustainable Urban Mobility in Asia (SUMA) program. This tool provides a comprehensive assessment of the status of air quality management in cities.

The Clean Air Scorecard Tool builds on experiences from past benchmarking studies and assessment tools and improved on these. This includes a benchmarking study on air quality management in 20 Asian cities conducted by Clean Air Asia, Korea Environment Institute, Stockholm Environment Institute, and United National Environment Programme (UNEP) in 2006. The assessment covered four components: air quality measurement capacity; data assessment and availability; emissions inventory; and AQM management enabling capacity. The study made use of a questionnaire survey developed in the early 1990s by the World Health Organization (WHO)/UNEP–GEMS Project.

3. Vision for the Clean Air Scorecard

Clean Air Asia is dedicated to improve air quality in Asian cities and has been working since 2001 with our partners and country networks in improving air quality and clean air management in Asian cities. Clean Air Asia envisions the Clean Air Scorecard to become the recognized assessment tool for air



quality management across cities in the region with results publicized in an online platform. The primary target users are Asian cities, followed by civil society, media and concerned citizens.

4. Overview of the Clean Air Scorecard Tool

The Clean Air Scorecard includes three indexes: (i) Air Pollution and Health, (ii) Clean Air Management Capacity, and (iii) Clean Air Policies and Actions (Figure 1).

Figure 1. Overall Structure of the Clean Air Scorecard



The Air Pollution and Health Index assesses air pollution levels of cities against WHO guideline values and interim targets. The Clean Air Management Capacity Index assesses a city’s capacity to (i) determine sources of emissions and their contribution (through an emissions inventory), (ii) assess the status of air quality (includes monitoring, modeling, data analysis and reporting), (iii) estimate impacts on health, environment and economy, (iv) reduce air pollution and GHG emissions through an institutional and policy framework and financing. The Clean Air Policies and Actions Index assesses the existence and enforcement of national and local policies and actions to address air pollutants and GHG emissions from mobile, stationary and area sources.

Each index consists of relevant questions for which points can be allocated. Higher scores indicate better air quality levels, management capacity, and policies and measures. The three indices contribute equal percentage to the total possible clean air score of 100.

Table 1. Score Bands for the Clean Air Scorecard

Air Pollution and Health Index		Clean Air Management Capacity Index		Clean Air Policies and Actions Index	
Category	Score Band	Category	Score Band	Category	Score Band
Excellent	81–100	Excellent	81–100	Excellent	81–100
Good	61–80	Good	61–80	Good	61–80
Moderate	41–60	Moderate	41–60	Moderate	41–60
Poor	21–40	Limited	21–40	Limited	21–40
Very Poor	11–20	Minimal	1–20	Minimal	1–20
Critical	1–10				

Air Pollution and Health Index

This index assesses air pollution levels of cities against World Health Organization (WHO) guideline values and interim targets.



A “good air” day in this index, then, is in relation to WHO guidelines rather than the city’s ambient air quality standards, which are generally less stringent. This index includes six criteria pollutants (PM₁₀, PM_{2.5}, SO₂, NO₂, CO and O₃); a city is required to have, at a minimum, monitoring data for particulate matter with a diameter of 10 microns or less (PM₁₀). The WHO guidelines and interim target- 3 (IT-3) were considered as basis for the excellent category. Succeeding categories were based on WHO interim targets 1 and 2 as well as annual average levels of Asian cities.¹

For a city with data for different pollutants, the pollutant with the lowest score is considered the main pollutant of concern, and as such, the score considered in the computation of the city’s overall clean air score is based on the pollutant with lowest score under the air pollution and health index. When comparing cities, however, it is recommended that the cities’ air pollution and health indexes be based on the same pollutant or set of pollutants.

The score banding and description for each category are presented in the table below.

Table 1. Score Bands and Category Descriptions for the Air Pollution and Health Index

Air Pollution and Health Index		
Category	Score Band	Description
Excellent	81–100	Low levels of pollution within WHO-prescribed guidelines. Public health implications for pollutants monitored are limited and hardly noticeable.
Good	61–80	Relatively low levels of air pollution but considerable impacts to sensitive groups.
Moderate	41–60	Elevated levels of air pollution with aggravated symptoms for sensitive groups and contributing to onset of risks for exposed healthy individuals.
Poor	21–40	High levels of pollution with significant health effects to vulnerable populations and contributing to increased risks for exposed healthy individuals.
Very Poor	11–20	Extremely high levels of pollution affecting large share of population.
Critical	1–10	Critical levels of air pollution resulting in adverse health effects to public in general.

Clean Air Management Capacity Index

This index assesses a city’s capacity to (i) determine sources of emissions and their contribution through an emission inventory and source apportionment; (ii) assess the status of air quality (includes monitoring, modelling, data analysis and reporting); (iii) estimate impacts on health, environment, and economy; and (iv) reduce air pollution and greenhouse gas emissions through an institutional framework, policy environment and financing, each accounting for 25% of the Clean Air Management Capacity Index Score.

This follows the general framework of drivers–pressures–status–impacts–response commonly used for organizing information about the state of the environment and assumes the cause–effect relationships of the interacting components of air quality management. The results of this index do not qualify the

¹ For example, *excellent* is based on the WHO guideline of 20 µg/m³ and interim target 3 of 30µg/m³. *Good* and *moderate* categories are based on the interim target 2 of 50 µg/m³ and the interim target 1 of 70 µg/m³, respectively. *Poor* and *very poor* categories are based on annual average PM₁₀ of 101.23 µg/m³ in 180 cities in Asia and the standard deviation of 50 µg/m³.



effectiveness of the capacity that is available in a city, only the existence of such a capacity. Table 2 describes the score banding and the description of the categories under the clean air management capacity index.

Table 2. Score Bands and Category Descriptions for the Clean Air Management Capacity Index

Clean Air Management Capacity Index		
Category	Score Band	Description
Excellent	81–100	Air quality management (AQM) and climate change mitigation is comprehensive and institutionalized in a dedicated organization under the city administration. Other stakeholder organizations are also engaged in collaborative activities within the city.
Good	61–80	AQM activities are comprehensively covered with initial activities on mitigating climate change in dedicated organization in city.
Moderate	41–60	Systematic emissions management procedures established in an identified unit or office.
Limited	21–40	Initial systematic procedures to reduce emissions are applied and integrated in general environment activities.
Minimal	1–20	Air quality management activities (<i>i.e.</i> , monitoring, emissions inventory, health impact studies) are often project-based or <i>ad hoc</i> .

Clean Air Policies and Actions Index

This index assesses the existence and enforcement of national and local policies and actions to address air pollutants and greenhouse gas emissions from mobile, stationary, area, and transboundary sources. The score for this index is composed of indicator shares representing the following main areas of policies and actions: (i) 25% for general clean air policy and actions, (ii) 30% for clean air policies and actions in transport, (iii) 25% for clean air policies and actions in energy and industry (representing stationary sources), and (iv) 20% for clean air policies and actions in other sources.

The table below describes the score banding and the description of the categories under the Clean Air Policies and Actions index.

Table 3. Score Bands and Category Descriptions for the Clean Air Policies and Actions Index

Clean Air Policies and Actions Index		
Category	Score Band	Description
Excellent	81–100	Use of market and economic instruments for reducing emissions. Roadmaps for tightening of standards and target emissions <i>at par</i> with international standards and best practices established. High technology application.
Good	61–80	Maturing of cleaner processes and use of cleaner fuels. Stringent emission controls and standards covering different emission sources.
Moderate	41–60	Some standards for ambient air quality, emissions, and fuel quality are in place. Emission control regulations for industries and stationary sources exist.
Limited	21–40	Policies relevant to emissions reductions are limited to general environmental laws.



Clean Air Policies and Actions Index		
Category	Score Band	Description
Minimal	1–20	Measures and activities to reduce emissions are project-related or <i>ad hoc</i> .

Overall Clean Air Score

The overall clean air score provides a quick snapshot on the overall status of clean air management in a city covering the three major indexes.

Table 2. Score Bands and Category Descriptions for Overall Clean Air Score

Overall Clean Air Score Category		
Category	Score Band	Description
Fully developed	81 – 100	Key components of clean air management complete. Strong mandate for air pollution and GHG management and strong sector-based and integrated policies, regulations and institutions to address major sources of pollution (<i>e.g.</i> , transport, industry, energy and area sources). Policies and actions contribute to achieving levels equivalent to prescribed WHO guidelines and interim targets for air pollution.
Maturing	61 – 80	Key Components of clean air management complete and some integration with other major sectors (<i>e.g.</i> , transport, health and energy sectors). Policies and actions have achieved some success in reducing AP/GHG emissions but air quality levels still exceed healthy levels prescribed by the WHO. Management efforts in all sector sources need to be intensified to bring down emissions further.
Emerging	41 – 60	Majority of key components of clean air management are in place. Policies and actions to reduce emissions from identified major sources need to be enhanced. Sector-based institutions need to upgrade technical and management capacity.
Developing	21 – 40	GHG and AP emissions are increasing and air quality declining. Clean air management activities are scattered in different organizations with limited collaboration. Needs to invest in strengthening components of basic air quality management and collaboration between stakeholders.
Underdeveloped	0 – 20	<i>Ad hoc</i> clean air management; lack in emissions and ambient air quality standards; Needs to build capacity for basic air quality and GHG emissions management.



5. Clean Air Scorecard Application and Further Development

Since its development in 2010, the Clean Air Scorecard has been applied in 24 Asian cities from nine countries². The implementation of the Clean Air Scorecard in these cities was supported by the ADB, Energy Foundation, Rockefellers Brothers Fund, German International Cooperation (GIZ), Integrated Programme for Better Air Quality in Asian Cities (IBAQ Programme) (funded by the Ministry of Environment of Japan) and Fredskorpset Norway.

The following feedback has been received from cities in terms of the use of the Clean Air Scorecard:³

- Helped cities to have a comprehensive understanding of AQM status and framework, and identify gaps in their air quality management strategies and activities
- Encouraged coordination between different agencies/departments working on air quality and related issues in cities
- Helped cities in benchmarking air quality management developments over time
- Supported identification of policies and measures to reduce emissions of air pollutants and greenhouse gases
- Provided input to national governments, development agencies, donors, other stakeholders understand where cities need help, which can be incorporated in national plans/policies, donor priorities and technical assistance projects / loans
- Helped cluster cities/provinces according to capacity-building needs
- Created a platform for exchange of learning and experience between cities

In 2014, Clean Air Asia received support from the UPS Foundation to implement Phase 1 of the Clean Air Scorecard tool upgrade. Based on the expert's review, the upgraded Clean Air Scorecard tool will enable a more objective assessment of Asian cities with respect to AQM processes, actions and policies. The upgrade of the Clean Air Scorecard tool is a major step forward for more reliable and less subjective assessment of cities' capacity for AQM.

6. Clean Air Scorecard – Online Tool

In 2015, Clean Air Asia received support from the UPS Foundation to continue with Phase 2 of the Clean Air Scorecard upgrade, focusing on the development of an online version which will be easily accessible to registered users. The aim of providing easier access is to allow active participation of cities and stakeholders in assessing its air quality policies and actions.

To complement the full air quality assessment of cities, a survey of the public awareness on air pollution and its sources will be incorporated in the Clean Air Scorecard website. The online survey is designed to measure the perceived state of the air quality and management actions of the government by the community and not necessarily as a summarized version of the tool. The survey will be open to the general public, including civil societies, media, and concerned citizens who may not have the necessary technical background to conduct a detailed assessment of air quality management in the city.

² These are: Bac Ninh, Vietnam; Bangkok, Thailand; Cagayan de Oro, Philippines, Can Tho, Vietnam; Chiang Mai, Thailand; Colombo, Sri Lanka; Foshan, PRC; Guangzhou, PRC; Hangzhou, PRC; Jiangyin, PRC; Hanoi, Vietnam; Iloilo, Philippines; Jakarta, Indonesia; Jinan, PR China; Kathmandu, Nepal; Korat, Thailand; Manila, Philippines; Quetta, Pakistan; Tongxiang, PRC; Visakhapatnam, India; and Zhaoqiang, PRC.

³ For more information please see: http://cleanairinitiative.org/portal/sites/default/files/documents/Knowledge_Management_on_Air_Quality_FINAL.pdf and http://cleanairinitiative.org/portal/sites/default/files/Making_Co-Benefits_Work_Case_Study_Report_-_FINAL_DRAFT_31_Jan.pdf



Clean Air Asia is keen to partner with interested organizations in development of the online platform and roll-out of application of the Clean Air Scorecard in more cities, in line with the long-term objective of providing regular assessments on status of air quality management in Asian cities.