Integrated Programme for Better Air Quality in Asia (IBAQ Programme)

CITY SOLUTIONS TOOLKIT:
ROLE OF POLICYMAKERS IN AIR QUALITY MANAGEMENT

INTRODUCTION

Governance encompasses the rules, practices, policies and institutions which define the interactions of all members of society with each other and with the environment. Within the context of air quality management (AQM), good governance aims to facilitate effective policy development and implementation, information-sharing and accountability mechanisms, and stakeholder participation, all in support improving the air quality (Clean Air Asia, 2019).

With policies being an essential component of air quality governance, it is important there are clear, equitable, implementable and enforceable laws designed to improve air quality, reduce emissions and protect public health. Aside from the regulatory framework (laws), mechanisms for ensuring capacity and coordination as well as participation and accountability are equally important so that the political and administrative authorities are effective in addressing the needs of their constituents (Clean Air Asia, 2019). In this light, policymakers can have a more impactful role in strengthening air quality governance by creating a regulatory framework that fosters these mechanisms for capacity and coordination and participation and accountability.

This toolkit is intended for policymakers, defined as those with legal authority to create public policies (Popoola, 2016). It aims to define their roles within the context of AQM, focusing on clean air action planning as its core. Within the city, policymakers would include legislators, the executive and administrators. These positions have the power to formulate laws in the form of ordinances, resolutions, executive orders, etc., meant to govern the public within their respective jurisdictions.

ROLE OF POLICYMAKERS IN CLEAN AIR ACTION PLANNING AND AQM

The Asian Development Bank's "Regional Capacity Development Technical Assistance (R-CDTA) 8751: Mainstreaming Air Quality in Urban Development through South-South Twinning" (2017) was implemented to facilitate sharing of knowledge and experiences in AQM from and within the region, focusing on four cities – Chengdu, Xiangtan, Kathmandu and Metro Manila and four countries – Nepal, Philippines, People's Republic of China and Thailand. It identified good practices, challenges and potential solutions to improve AQM in the region. Based on the TA's regional assessment, a number of recommendations were made to fortify pollution prevention and control efforts.

The first of these recommendations was for cities to develop a clean air action plan (CAAP) with clear objectives, roles, and accountability

This toolkit and the Guidance Framework emphasize that clean air action planning is indispensable in establishing a good AQM system. Through the clean air action planning process, scientific information on the levels of air pollution, emission sources as well local health and environmental impacts of pollution are used to provide a comprehensive understanding of the air quality status in the city. This understanding of air quality status becomes the basis for how the government and various stakeholders prioritize actions in the CAAP and mobilize resources in the most effective and efficient manner to reduce emissions, protect human health and the environment, and help achieve air quality objectives (Clean Air Asia, 2019).

Aside from being a scientific and systematic way of identifying resource-efficient measures, clean air action planning also ensures that core principles crucial to a good environmental governance system are in place. The following table illustrates this by showing which steps of the CAAP development imbibe the core principles of environmental governance:

Core principle	Description	STEP 1: Establish the planning process	STEP 2: Establish baselines	STEP 3: Select appropriate control measures and plan for operationalization
Regulatory framework	**Effective laws** Policies and laws required for improving air quality or the AQM capacity are based on evidence and stakeholder input as part of the Planning (Step 1) and Baselining steps. Operationalization of measures (Step 3) ensures that the policies are implementable and enforceable.	X	X	X
Capacity and Coordination	**Human and financial resources** Resource needs assessment and mobilization during the Planning (Step 1) and Operationalization (Step 3) sub-steps ensure that the city government and its stakeholders have sufficient resources – human, financial, goods and services – for developing and implementing the CAAP.	X		X
	Training and learning Resource needs assessment and	X		X

	mobilization under Steps 1 and 3 look at the technical capacity and proper tools needed for CAAP development and implementation.			
	Institutional Coordination Stakeholder and institutional mapping (Step 1) as well as Operationalization (Step 3) identify all relevant stakeholders, define their roles and lines of authority, and establish mechanisms for efficient and non-duplicative program delivery.	X		X
Participation and Accountability	**Stakeholder Participation** and **Dispute Resolution** Stakeholder engagement throughout the entire process provide opportunities for participation in decision-making as well as fair and responsive dispute resolution.	X	X	X
	Accountability and **Information Dissemination** Stakeholder engagement and communication activities throughout the process ensure that decision-makers are accountable during the planning and implementation.	X	X	X

The core principles were compiled from Benjamin and Fulton (2011); SEPA (2012). Adapted from Clean Air Asia, 2019.

Given the importance of clean air action planning in managing air quality, the following recommendations from the ADB TA are framed around the important roles policymakers can play in CAAP development and implementation:

1) Increase political and public awareness on air pollution impacts

It is in the interest of policymakers, as those mandated to create laws that will serve the needs of their constituents, to improve knowledge and understanding about air pollution and how it can be effectively addressed. A concrete way to do this is to coordinate with city technical officers, academic institutions and other groups who generate scientific data on air pollution and assess its impacts. These information are important in decision-making, especially in prioritizing pollution reduction

measures and mobilizing sufficient resources for AQM that consider the actual costs (social, health and economic costs) of air pollution.

2) Strengthen emission prevention and control and use of economic instruments

One of the findings of the ADB TA was that Asian cities do not utilize the full range of policy instruments that can contribute to more comprehensive and effective air pollution control strategies. These policy instruments include economic-based ones such as taxes, levies, penalties, differential pricing of fuels and energy sources, and incentives for greener options or investments. The following are other types of policy instruments that can be used in AQM.

Type of instrument	Description	Example
Command-and-Control (CAC)	Issue of licenses, setting of standards, checking for compliance with standards, sanctions for non-compliance	• Air pollution control regulations • Government monitoring • Emission standards • Enforcement policies
Economic	Use of pricing, subsidies, taxes, and charges to alter production and consumption patterns	• Load-based emission charges • Tradable emission permits ("cap and trade") • Differential taxes for differential risks
Co-regulation and voluntary initiatives	Adoption of rules, regulations and guidelines, negotiated within prescribed boundaries	• National registers of pollution emissions inventories Voluntary adoption of environmental management systems and measures
Self-regulation	Self-imposition of rules and guidelines and environmental audits by industry groups	• Industry codes of practice • Self-audit within industry groups
Education and information	• Education and training • Community right-to-know • Corporate reporting programs	• Capacity enhancement and information programs • Company initiated-GHG or energy audits • Corporate sustainability reports

Source: Adapted from Haq and Schwela (2008)

Based on a survey of existing air quality management regulations in Asia, commonly utilized policy instruments fall under command-and-control, such as:

- setting of emission standards for vehicles and industries
- setting vehicle and fuel standards (e.g. Euro 6)

- banning of certain practices such as open burning of garbage or agricultural waste
- phasing out of specific technologies such as two-stroke three-wheelers.

It is recommended that cities explore utilizing other types of policy instruments like economic or co-regulation types. Some policy instruments can also be mutually supportive – for the national government can set emission standards while industries can work with each other to self-regulate or improve existing technologies to the emission standards.

Policy instruments hingeing on stakeholder participation such as co-regulation and voluntary initiatives are an invaluable resource to achieve air quality targets. To further highlight this fact, it may help to briefly talk about the different types of governance arrangements. Within the context of the city, there can be two main types: government-led (based on the top-down approach at the national context) and multi-level and multi-stakeholder approaches:

Governance arrangement	Strengths	Weaknesses
Government-led approach **This approach involves policy and solution formulation mainly involving the government, with moderate to low interaction with stakeholders such as industries or transport groups.**	When political will is strong, clear actions can be rolled-out and compliance enforced.	Implementing this approach may have high requirements for human and financial resources from the government. It will also limit opportunities for looking at more creative and stakeholder-centric solutions.
Multi-stakeholder and multi-level approaches **Using this approach, actors at different levels of decision-making (within a city, this can mean legislators, department heads/ administrators and community leaders) and various stakeholder groups work together in coming up with solutions. It is important to emphasize that multi-stakeholder**	This is expected to result to more effective and efficient policies: effective because ensuring compliance will be a shared burden of all and not just the government; efficient because solutions will be tailored to local needs and implemented through collaboration and resource sharing.	In developing the policy or coming up with the solution, convening and coordinating with a wider stakeholder group, will require greater effort and resources compared to involving only a handful of decision-makers. However, this challenge can be managed by strategic planning (e.g. defining clearly who the stakeholders are, objectives and expected output for

approaches do not translate to governments taking on a smaller role. Experience shows that they will frequently need to steer this diverse group of stakeholders during this process.		engagement activity, etc.) and sharing of resources.

Source: Clean Air Asia, 2019

In a nutshell, the role of policymakers in strengthening emission prevention and control would be to: Develop policies and regulations in support of air pollution reduction measures from the city's clean air action plan. It is highly recommended that these regulations are developed utilizing the most effective policy instruments (or a combination of them) and with efforts towards multi-stakeholder and multi-level approaches.

3) Integrate air pollution prevention and control into sectoral policies

Having good CAAP as basis of the city's air quality improvement efforts is only half the battle. In order to ensure its continued implementation, it needs to be integrated into sectoral policies and plans. This is because air quality is affected by policies, plans, activities and emissions from key sectors such as transportation, energy production and industries (ADB, 2017). Thus, the CAAP needs to be integrated with the sectoral plans such as:

- Transportation management plan or sustainable urban mobility plan
- Plans relating to or including energy production, energy efficiency and conservation, or renewable energy
- Plans relating to managing industrial activity
- Land use plan – A city's land use planning affects air quality especially in the long term as it includes zoning codes, housing, greenfield development and others. These in turn influence migration and emigration patterns, travel activity, commercial and industrial development.

Source: ADB, 2017

Policymakers, such members of the city council, have the authority to approve or adopt city plans including the clean air action plan. They can play a lead role in facilitating its integration with sectoral policies and plans. Here are a couple of tools that are useful in this integration process:

- Cost-benefit analysis
  The term "co-benefits" originated in the context of climate change mitigation – it refers to other benefits (such as meeting development goals) of an action which was mainly designed to reduce greenhouse gas (GHGs) emissions. Co-benefits is not limited to climate change mitigation and can also be defined as the side benefits resulting from an air pollution

reduction measure. Moreover, co-benefits can be quantified. For example, the Transport Emissions Evaluation Models for Projects (TEEMP) can be used to quantify benefits of various transport solutions such as promoting non-motorized transportation or putting up a bus rapid transit (BRT) system. It is an Excel-based tool that estimates emission reduction of air pollutants and GHGs while also computing for fuel and time savings that result from the intervention (Clean Air Asia, n.d.). The co-benefits approach makes the integration of the CAAP and sectoral plans easier by demonstrating that these plans are not mutually exclusive, rather they have synergistic or mutualistic effects. The co-benefits approach also helps with having the multi-stakeholder governance arrangements since it can be used to show shared interests among actors who may not be aware of them at the onset (IGES, 2018).

- Strategic environmental assessment
  It is an accepted reality that some aspects of urban development will result to air pollution. To make sure that these potential negative impacts are already considered in the planning process, a strategic environmental assessment (SEA) can be conducted. The SEA is a systematic framework for assessing environmental impacts of development that, when applied, will allow air pollution prevention and control strategies to be incorporated in the development plan itself (ADB, 2017).

5. Secure adequate financial resources

It goes without saying that an AQM system cannot be implemented without adequate financial resources (ADB, 2017). Policymakers can address this by allocating budget to support clean air action planning and AQM-related activities in the city. In some cities, annual budget for all city departments is allocated through a budget ordinance passed by the city council. Policymakers can also mobilize resources by using economic instruments such as emission fees towards this end.

CASE STUDIES

Case Study 1: Creation of an inter-agency working group in Santa Rosa City, Philippines

Action: Develop an institutional set-up for air quality management

As one of Santa Rosa City's first steps in developing its CAAP, an inter-agency working group was formed through an Executive Order issued by the Mayor.

The working group was composed of the following:

- From the local legislative body, the Chair of the City Council's Committee on Environment
- City Environment and Natural Resources Officer
- City Planning and Development Coordinator Officer
- City Engineer
- City Information and Technology Officer
- City Traffic Management and Enforcement Officer
- City Health Officer
- City Disaster Risk Reduction and Management Officer
- Local university

Key expectations from stakeholders when working together:

- Cooperative
- Coordinated
- Harmonized actions
- Holistic approach

Main Objective: Develop complementary plans and programs in relation to air quality so that a sustainable and environmentally-sustainable city is maintained.

The working group had the following responsibilities and mandate:

- Collaborate and coordinate during meetings
- Maintain clean air in the city through the efforts and collaboration of everyone
- Assess the air quality data versus its effects to health and the environment
- Assist in the conduct of emissions inventory in the city
- Assist in engaging stakeholders to establish commitments towards achieving clean air
- Mainstream air quality policies to city government operations and infrastructure development

It is important to state that the collection of agencies and their mandate is the institutional backbone to perform the work in developing a CAAP. It is recommended that cities form a similar group, to be legitimized by the city council. Take note that the responsibilities listed also promote a collaborative, science-based culture for inter-agency work. In this case, an enabling environment is established for the city to have the beginnings of an effective, integrated air quality management scheme.

Case Study 2: Translating Control Measures from Hong Kong, China's CAAP into Laws

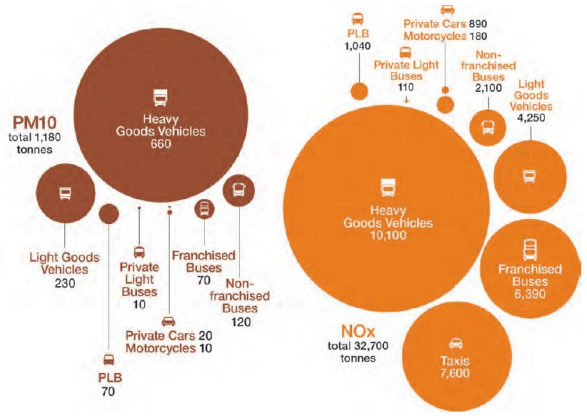
Hong Kong, China had a number of objectives and measures to improve air quality. Presented in this discussion is how a control measure came to be and how it can eventually become a law.

Management Objective: Reducing Roadside Air Pollution

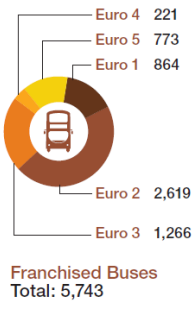
The government of Hong Kong, China first conducted baseline air quality measurements. This led to a prioritization of the following three types of high polluting vehicles:

- Pre-Euro IV diesel commercial vehicles (DCV)
- Inadequately maintained liquefied petroleum gas (LPG) taxis and petrol vehicles
- Euro II and III franchised buses.

Shown here are some of the preliminary data that guided decision makers to prioritize certain vehicles.



Emissions Profile of Hong Kong, China's Vehicular Fleet



Emissions Standards of Diesel Commercial Vehicles

It was assessed that Hong Kong, China's pollution from vehicles is high. Focusing on DCVs brought about specific measures.

Control Measures

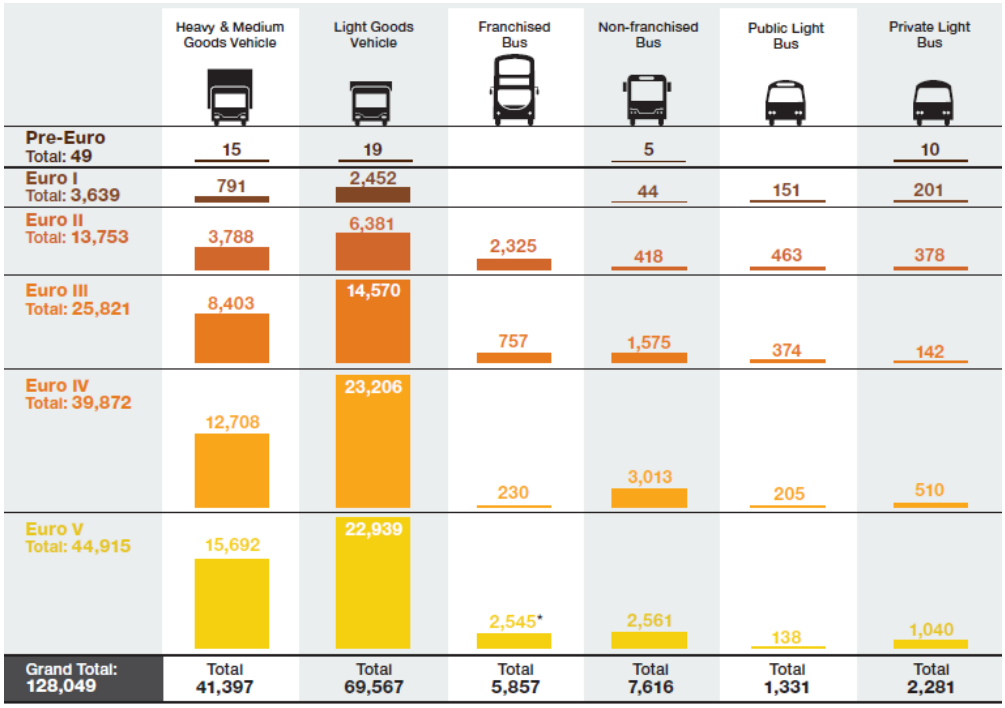
It was planned that there will be replacement of the old DCVs. The plan was also designed to incentivize the replacement of pre-Euro 4 DCV by cleaner models and to ban the use of the older models within a stated period.

Timeline
2014 – 2016: replacement of pre-Euro, Euro 1, Euro 2 and Euro 3
Until 2019: replacement of Pre-Euro 3 DCV and Euro 3 vehicles

The rationale is that if all DCVs were replaced with the best technology, there will be a significant improvement on air quality. Emissions of PM and NO_X from vehicles will be reduced by 80% and 30% respectively.

With expected major reductions that should lead to PM10 and PM2.5 levels at roadside meeting the new air quality objectives (AQO) by 2020. This will reduce the number of premature deaths due to long-term exposure to these pollutants by around 14% per year. As the number of pre-Euro 4 DCV will progressively drop over the period 2014- 2020, there will be steady emissions reduction at roadside every year.

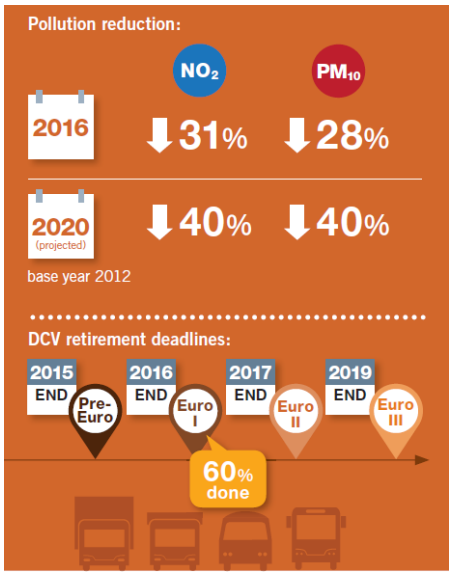
By the end of 2012, there were many vehicles (two-thirds) with pre-Euro 4 engines. As show in the image below, these types were highly pollutive:



Two measures were highlighted to address the problem of ageing DCV and to retire pre-Euro IV DCV. Eventually the Environmental Protection Department and Environment Bureau worked on a law to improve the situation. The Air Pollution Control (Air Pollutant Emission) (Controlled Vehicles) Regulation, was passed on 18 December 2013. It sets the retirement deadlines for pre-Euro IV DCV and limits the service life of DCV first registered on or after 1 February 2014 to 15 years. This addressed the issue for Hong Kong, China not having a legal limit on the retirement of vehicles and thus had an old fleet of DCV. “With the new law, the DCV fleet will be renewed as all such vehicles newly registered on or after 1 February 2014 must retire after 15 years.” (Clean Air Plan, 2013 – 2017).

Development of the Law

The Air Pollution Control Regulation is actually an older law but updated for the more recent Air Action Plan of Hong Kong, China. The Hong Kong, China government after completing a subsidy scheme to install particulate reduction devices began a series of regulations to improve vehicle technology in relation to reducing air pollution.



In December 2003, regulation was established requiring pre-Euro diesel vehicles to be properly installed with approved particulate reduction devices. The Environmental Protection Department continued evaluating and improving regulations all the way up to regulating the age limit of diesel engine vehicles.

The infographic shows how Hong Kong, China is updating and communicating its information on the progress of pollution reduction.

[Source: Clean Air Plan for Hong Kong, China 2013 – 2017 Progress Report]

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