



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

CITY SOLUTIONS TOOLKIT:

MAINSTREAMING AQM WITHIN MUNICIPAL FINANCE IN DEVELOPING CITIES IN ASIA

THE SITUATION

Air pollution is the fourth leading global risk factor for early deaths globally (Health Effects Institute, 2020), and developing cities in Asia Pacific, in particular, face air quality management (AQM) and climate challenges that compete with other development priorities. These cities lack the economic resources of larger, more affluent urban centers and have yet to develop well-defined financial strategies to address their AQM needs.

High rates of economic growth, migration from rural to urban areas, increased rates of car ownership, and increasing demand for energy all contribute to the challenges that these cities face. These same factors are also increasing the demand for expanded city services and increasing pressure on budgets. This document is designed to help city officials navigate the AQM mainstreaming process, leading to a more seamless integration of AQM initiatives as a routine part of municipal financial planning.

THE APPROACH

Municipal finance at the most basic level is concerned with the revenue and expenditure decisions made by municipal governments. It encompasses the revenue (taxes, fees and transfers) that are used by cities to fund services, as well as the strategies used to finance more capital-intensive infrastructure. One of the primary challenges facing cities today is the increasing demand for expanded services and the competing needs resulting from limited financial resources.

It is important to consider how air quality initiatives can be more firmly established as a central component of urban environmental initiatives. To accomplish this will require the coordinated efforts of external stakeholders and city decision-makers. At the same time, it is necessary to anticipate the work of these groups by identifying ways to facilitate and mainstream AQM and climate change initiatives within the existing municipal finance planning processes. The [IBAQ City Solutions Toolkit](#) provides guidance on mainstreaming air quality in urban development.

A look at the percentage of the overall spending of a select set of developing cities in Asia, Latin America, and Africa shows an allocation of anywhere from zero to 7.3% of total budgets going to environmental protection. A look at these same cities shows that other areas such as health, public safety, education, and housing fare better, with 20% going to housing in Bolivian cities, 45% to education in Mauritius, and 20% to health in South Africa. The focus on these numbers offers important insights into the current priorities



of city leaders globally while helping to identify opportunities to link the need for improved AQM to potential savings in areas such as health and housing.

Through a consistent approach focused on the identification of AQM opportunities presented by the budgeting process and through an analysis of existing sources of revenue collection, decision-makers are offered a stronger starting point from which to launch concerted AQM and climate change mitigation actions, as well as an improved understanding of how municipal finance can be leveraged to further air quality and climate goals.

EXPANDING AQM WITHIN THE CONTEXT OF MUNICIPAL FINANCE OPERATIONS

In order to identify the opportunities to mainstream AQM and climate change action as an integral component of municipal finance, it is important to have a good understanding of the main concepts involved. Without going too deeply into the intricacies of municipal finance concepts, it is possible to establish links between those high-level concepts common to cities globally and some of the air quality and climate change links identified. The [Guidance Framework](#) provides a detailed discussion on financing AQM.

The discussion that follows is centered around three municipal finance concepts: (1) Municipal revenues; (2) financing capital expenditures; and (3) municipal budgeting.

MUNICIPAL REVENUES

Revenues are the foundation on which municipal financial operations are built. The main components of city revenues consist of three primary sources: Taxes, user fees (tariffs), and intergovernmental transfers. As part of the AQM finance mainstreaming approach, cities can begin by considering each revenue source and the potential each has to support further AQM action. Below is a discussion of the three sources of revenue and their AQM links:

Taxes

Taxation comes in a variety of forms. The partial list of taxes commonly associated with municipal taxation include: Property, sales, and land transfer (stamp duties).

Some of the tax and AQM mainstreaming links include:

- *Rate determination:* City governments that frequently assess taxes have the authority to also set rates of taxation. In many North American jurisdictions, local governments first determine expenditures, subtracting non-property tax revenues (transfers, fees, other revenues), leaving them with an estimate of their total revenue requirements. The results of this calculation are then used to set a property tax rate based on the available taxable assessment of property. This process presents a clear opportunity to integrate AQM measures into revenue-requirement calculations, providing an opening for enhanced AQM mainstreaming measures.
- *Rate variation:* In some cities, variations to the rate of taxation are permitted based on changes in property class or services received. If a local government determined that certain property classes,



such as commercial or industrial, contributed more to local air quality, officials could determine that the class of property in question should be assessed at a higher tax rate, directing the additional revenue to air quality enhancement measures.

- *Property Tax*: Property tax offers opportunities for AQM-linked investments and is a proven means of generating municipal revenue, but it is viewed as under-utilized in developing countries, accounting for only 0.6% of GDP on average compared with more than 2% in industrialized countries.
- *Consumption tax (sales tax)*: Consumption tax is another common form of taxation in cities, often supplementing revenues generated by property tax. As an elastic source of revenue (a source that grows with the economy), sales tax offers revenue generation for air pollution control that is also driven by economic activity. Additionally, by including sales tax as an element of revenue generation, cities can broaden the tax base to assess taxes on the beneficiaries of services (commuters or visitors) who might not otherwise be assessed through property taxation.
- *Vehicle/fuel tax*: Taxes targeting vehicles and fuel consumption offer unique opportunities to encourage “good behavior”, serving as a mechanism to reduce fuel consumption while encouraging cleaner, more fuel-efficient vehicles. Fuel taxes are generally assessed at a national level with generated revenues being earmarked for roads and transport purposes, presenting an opportunity to integrate more sustainable transport alternatives through the use of these funds.
- *Hotel occupancy tax*: This tax allows for the generation of revenue from a group that uses local services (tourists and visitors), while offering additional opportunities to direct a portion of revenue to specific purposes such as air quality and environmental protection. Examples of this are seen in cities where hotel stays are taxed and revenues go to activities such as environmental protection, clean transport, and other sustainability measures that in turn are seen as opportunities to boost additional tourism.

User fees (tariffs)

User fees, sometimes referred to as tariffs, cover a range of charges that are assessed as a charge per unit of output. These charges fall into two categories: Service fees and public prices.

Below is a description of both of these types of charges and their associated AQM mainstreaming links:

- *Service fees*: Service fees are the charges levied by local governments for performing specific services. Typically, this includes such services as vehicle registration or the provision of official documents. Service fees relevant to AQM mainstreaming include fees such as vehicle registration fees, business construction, and development permitting.
- *Public prices*: These are revenues generated by local governments that are associated with the sale of goods and services to private entities. An example of a public price is a congestion charge, a charge assessed as the price to access roads in a pre-defined area of the city, that is used as a means to reduce both air pollution and traffic congestion. Other common examples include tariffs charged for water supply or wastewater services.

Another consideration related to AQM in the context of user fees is ensuring the efficacy of those user fees. By ensuring that user fees are set at or slightly above the actual cost of a specific good or service, officials can ensure that a product or service will not be used in an inefficient manner. This would apply in the case of water pricing, by setting the fee for water use in such a way as to ensure that consumers do not wastefully use water resources. This also has implications for AQM as water provision is highly energy



intensive, implying embedded costs and energy for every unit of water delivered. By setting the price of water in a way that reflects those costs and inputs, cities ensure that water and energy are not inefficiently consumed.

Intergovernmental transfers

Intergovernmental transfers are important sources of revenue for municipalities globally. There are many types of transfers, each having different conditions related to the spending of the funds received. Generally, transfers can be categorized in two ways: (1) Unconditional (general purpose) transfers; and (2) conditional (specific purpose) transfers. **Unconditional transfers** imply no set conditions associated with their use, while **conditional transfers** are tied to spending on specific expenditures, such as roads, parks and other local services.

Transfers can come in a variety of forms with several justifications. These justifications include addressing fiscal gaps, political basis, and addressing the externalities associated with service provision. As cities seek to integrate AQM within discussions related to government transfers to the city level, it will be important to first establish strong public support for the direction of national and provincial-level funds to a city's air quality needs. This is because air quality impacts are felt across entire metropolitan regions irrespective of administrative or jurisdictional boundaries. In this instance, city officials could readily make the argument that a transfer of funds was justified on the basis that the spillover impacts of air quality require a centrally coordinated approach by a single city administration.

FINANCING CAPITAL EXPENDITURES

Cities will typically use current operating revenues derived from existing taxes and fees to support operating expenditures such as wages and salaries, as well as to acquire equipment with a short life expectancy such as computers and public vehicles. For more capital-intensive investments, cities will need borrow or create reserve funds designed to set aside revenues for later use in a special account. Intergovernmental transfers offer an additional mechanism for the funding of larger-scale investments.

If a city decides to explore its **borrowing** options, this will involve either the mobilization of private capital or municipal borrowing. In many less-developed contexts, cities will have limited borrowing alternatives, mostly restricted to government sources or government-backed financial institutions. In some larger cities in medium-income countries (Mexico, South Africa, India), cities have successfully accessed capital markets on the basis of strong credit ratings, issuing debt through international financial instruments.

When considering the applicability of AQM measures to this form of finance it is important to note that these investments are typically limited in scope to infrastructure that has a predictable revenue stream, mostly focused on the areas of water, waste or transport services. As each of these three service sectors offer opportunities for AQM integration, this strategy involving large-scale finance is worth considering.

Development charges are another more recent instrument offering an opportunity to finance large-scale infrastructure. Development charges are an approach widely used in North America to finance the



growth-related capital costs associated with new developments or the redevelopment of geographically delimited areas of a city.

They are charges associated with work to be overseen by the municipality. Funds are collected and will be directed to investments associated with the development being charged. This concept is based on the premise that charging developers for off-site growth-related costs should not pose a burden on taxpayers. This approach covers any capital costs associated with the planned growth. At the most basic level, this would include the infrastructure needed to provide basic services to the development itself, such as water and sewerage services. However, this approach does not exclude the inclusion of other needs associated with development, such as transit, recreational facilities, and environmental protection, including air quality investments.

MUNICIPAL BUDGETING

A municipal budget reflects the decision-making process leading to an annual or multi-year period of expenditures to support city services and infrastructure, in addition to describing the incoming revenues that will be used to cover those expenses. As well as serving as a cost control mechanism, the municipal budget also provides clear guidance to inhabitants and city personnel on the spending priorities for that period, contributing to overall accountability and the transparency of the city's financial system.

It is common for cities to prepare two types of budgets: (1) An annual operating budget that captures projected revenues and expenditures; and (2) a capital budget that incorporates planned capital expenditure projects and revenues.

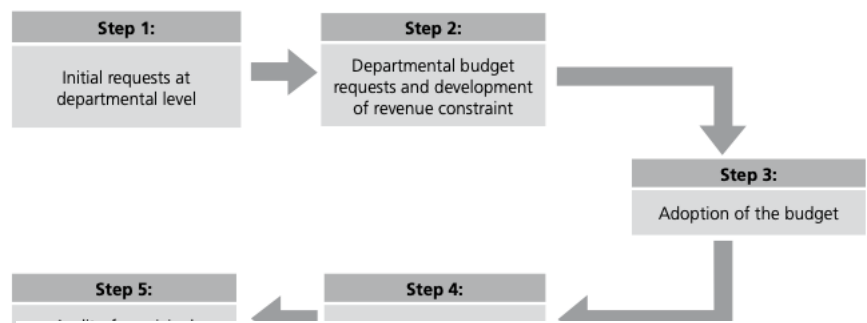


Figure 1: Steps in the development of a municipal budget.

Integrating AQM considerations into each requires coordinated planning and assessment in order to incorporate required budget line items in support of specified AQM activities. Funding for AQM planning, analysis and regulatory initiatives will fall within the operating budget request, but may also provide the foundation for AQM initiatives that will eventually require capital funds. The [IBAQ City Solutions Toolkit](#) provides a detailed discussion on the clean air action planning process and implementation.

The development of incoming revenues that are linked to, or otherwise encourage, improved AQM will provide a strong foundation for AQM budget requests. In addition to the need for equipment and associated operational and maintenance costs, there is also a need to include sufficient personnel and staffing budgeting to facilitate AQM action.

The development of a municipal budget is a five-step process (see Figure 1) that begins with guidance from the local council in the form of set objectives, such as improved housing or transport, and insights



into fiscal objectives such as limited or no increase in taxes. The five stages involve initial departmental budget requests (step 1), followed by follow-up requests and reconciliation based on revenue constraints (step 2). Next, the budget is adopted by the council (step 3), which often will involve a public feedback process. Implementation and monitoring overseen by a chief financial officer (step 4) and an audit by independent auditors on completion of the fiscal year (step 5) are the final steps. This five-stage process offers multiple opportunities to introduce AQM action both internally via the municipal bureaucracy (at the departmental level or via the mayor's office), as well as via external stakeholders through public advocacy and participation.

From an internal perspective, city staff involved in the process of budget request development can support an AQM agenda by establishing strong arguments for investments in monitoring and air quality action both in the form of cost estimates, and medium and long-term investment analysis.

This approach, combined with coordinated external stakeholder communication, in support of AQM can be effective at various points in the budgeting process, perhaps most importantly for step 2 (departmental budget requests) and step 3 (adoption of the budget). These interventions require good coordination and interaction with elected officials in order to ensure influence in the decision-making process.