



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

# CITY SOLUTIONS TOOLKIT: GUIDANCE ON CO-BENEFITS

## BACKGROUND

Cities can mitigate climate change through policies, programs and projects which have greenhouse gas (GHG) emission reduction as their primary objective. Cities can also address climate change through policies, programs and projects which meet both economic development priorities and climate concerns, thereby delivering 'co-benefits' (MoEJ, 2020). IPCC (2018, cited in MoEJ 2020) defines co-benefits as the positive effects that a policy or measure, primarily designed for an objective such as climate change mitigation, may have on other sustainable objectives, thereby resulting to an increase in total benefits to the society or the environment.

Numerous research have been conducted on co-benefits over the past 30 years. Two kinds of perspectives emerged as part of that work: the climate change perspective and the air pollution perspective. The starting point of the climate change perspective, as suggested by the name, is a climate policy or objective to reduce carbon dioxide emissions while also controlling conventional air pollutants. The air pollution perspective, on the other hand, focuses on types of air pollutants called short-lived climate pollutants (SLCPs) (MoEJ, 2020). SLCPs, such as tropospheric ozone (O<sub>3</sub>), black carbon (BC), methane (CH<sub>4</sub>), and hydrofluorocarbons (HFCs), not only affect public health but also contribute to climate change. SLCPs have shorter life spans (days to a few years) compared to GHGs that can last up to over 100 years in the atmosphere. Because of their short atmospheric lifetimes, reducing these emissions has immediate climate benefits. Thus while controlling long-lived GHGs is essential for addressing climate effects in the long term, controlling SLCPs is important to reduce the rate of climate change in the near-term simultaneously yielding other co-benefits such as improvements in health and food production (Clean Air Asia and UNEP, 2019).

## APPLICATION OF CO-BENEFITS IN CLEAN AIR ACTION PLANNING

The Asian Co-Benefits Partnership is an informal network with the objective of improving stakeholder cooperation and knowledge management on co-benefits in Asia. It was formally launched at the 2010 Better Air Quality Conference in Singapore with the support of 100 participants and the Ministry of the Environment of Japan. The [ACP website](#), as the interactive platform for facilitating information sharing and dialogue, is being hosted and maintained by the Institute for Global Environmental Strategies under the initiative of the Ministry of the Environment, Japan (MoEJ, n.d). Among the resources it holds is a list of [Co-Benefits Tools](#) that can be used by cities in quantifying impacts considering sectors such as air pollution, climate, economic development, residential energy, transport, and waste.

Within the context of clean air action planning (refer to the module on [Step-by-step guide for cities to develop clean air action plans](#)), the Co-Benefits Tools are useful for the following actions under **Step 3: Set targets, select appropriate control measures, and plan for operationalization**:

- Setting air quality management targets – The tools can be used in modeling health, economic and developmental benefits of reducing air pollution by a certain amount. For example, BenMAP can estimate the avoided health impacts resulting from a decrease in PM<sub>2.5</sub> ambient levels (EPA, 2019). These can then inform the air quality goals and emission reduction targets that can be set by the city.



- Selecting appropriate control measures – Some of the tools can estimate impacts for a variety of control measures. For example, Transport Emissions Evaluation Model for Projects (TEEMP) can evaluate the impacts of transport solutions such as establishing a bus-rapid transit, constructing bicycle or pedestrian facilities and others at a project level (Clean Air Asia, n.d.). Cities can then select the most cost-effective pollution control measure with the greatest benefits.
- Formulate a monitoring and evaluation (M&) system – The projected benefits during the target setting sub-step can be compared with the actual benefits resulting from the implementation of the measures as part of the M&E.

Aside from the specific sub-steps above, the co-benefits approach can be applied more broadly by the city through mainstreaming air quality management (AQM) in its urban development. Mainstreaming hinges on the understanding of sustainable development – that the economic, social, and environmental aspects of development are not contrary to each other but are mutually reinforcing. These mutual reinforcements by the three main components of sustainable development can be quantified through co-benefits. Mainstreaming air quality in a city's urban development can be carried out at two levels: (1) integrating AQM into governance, institutional arrangements, and processes and (2) including air quality goals and considerations in the city's overall development goals, performance indicators, and plans. the [Guide to Mainstreaming air quality in urban development](#) module addresses both levels.

#### REFERENCES:

Clean Air Asia and UN Environment. (2019). *Training module on Guidance Framework for Better Air Quality in Asian Cities. Guidance Area 4: Air quality communication*. Unpublished.

Clean Air Asia. (n.d.). *Transport Emissions Evaluation Model (TEEMP) Tool*. Retrieved from <https://www.cleanairinitiative.org/portal/TEEMPTool/>

Environmental Protection Agency (EPA). (2019) *Environmental Benefits Mapping and Analysis Program - Community Edition (BenMAP-CE)*. Retrieved from <https://www.epa.gov/benmap>

Intergovernmental Panel on Climate Change (IPCC). (2018). *Summary for Policymakers. Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Geneva, Switzerland: World Meteorological Organization.

Ministry of the Environment Japan (MoEJ). (2020). *Asian Co-benefits Partnership White Paper 2020. Implementing Solutions to Climate Change and Air Pollution in Asia: Mobilising Finance, Strengthening Policies and Building Capacities*. Japan: Ministry of the Environment.

Ministry of the Environment Japan (MoEJ). (n.d.). *About the ACP*. Retrieved from: <https://www.cobenefit.org/about/>