

ADB Asia Clean Blue Skies Program Phase 1  
**Launch Event | Suwon City, South Korea**

# Preparatory Phase Technical Support Case Studies

**Tom Buckland**

Associate Director

*Ricardo Energy & Environment*  
thomas.buckland@ricardo.com

This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

# Agenda

---

Introduction to providing technical support

---

How did ACBSP decide on which projects to support?

---

Davao Public Transport Modernization Project, the Philippines

---

Bengaluru Metro Rail Project, India

---

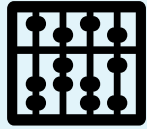
Greater Malé Waste-to-Energy, Maldives

---



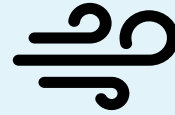
# Introduction to providing technical support

## Technical support provided under the Preparatory Phase



### Emissions assessment

- Help to understand the sources of pollutants and develop an emissions inventory
- Provide a quantitative assessment of the air quality benefits of the project in terms of reduced emissions
- Estimate the economic and health benefits resulting from this change



### Air dispersion modelling

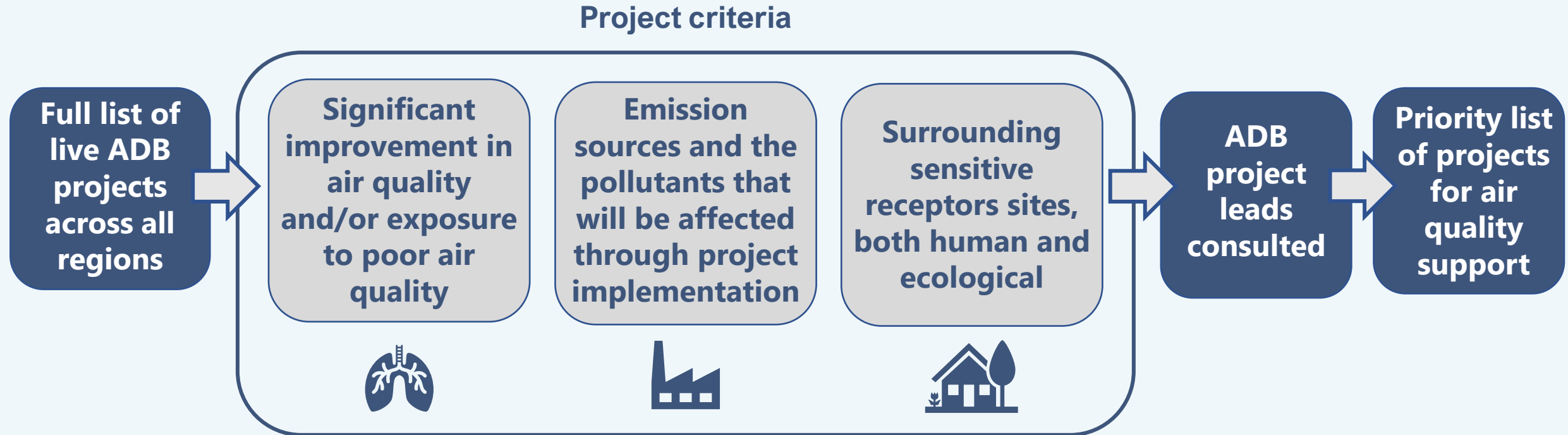
- Estimate local changes in pollutant concentrations resulting from the project
- Estimate the economic and health benefits resulting from this change
- Calculate city-wide human health exposure
- Develop scenarios to determine which policies are the most effective



### Capacity building

- Provide capacity building workshops to project teams and relevant stakeholders
- Deliver specialist training and advice from experts
- Provide project specific recommendations

# How did ACBSP decide on which projects to support?



# Davao Public Transport Modernization Project

The Philippines



**Asia Clean Blue Skies Program Phase 1  
Launch Event** (September 7, 2022)



# Air Quality Impact Assessment for the Davao Public Transport Modernization Project

## What is the ADB project?

- Improvement of public transport operations in Davao
- Improved city-wide bus-based public transport operating system including:
  - Upgrade to modern bus fleet to replace existing Public Utility Jeepneys
  - Traffic management improvements to prioritize bus services along a core network



Source: Unsplash.com



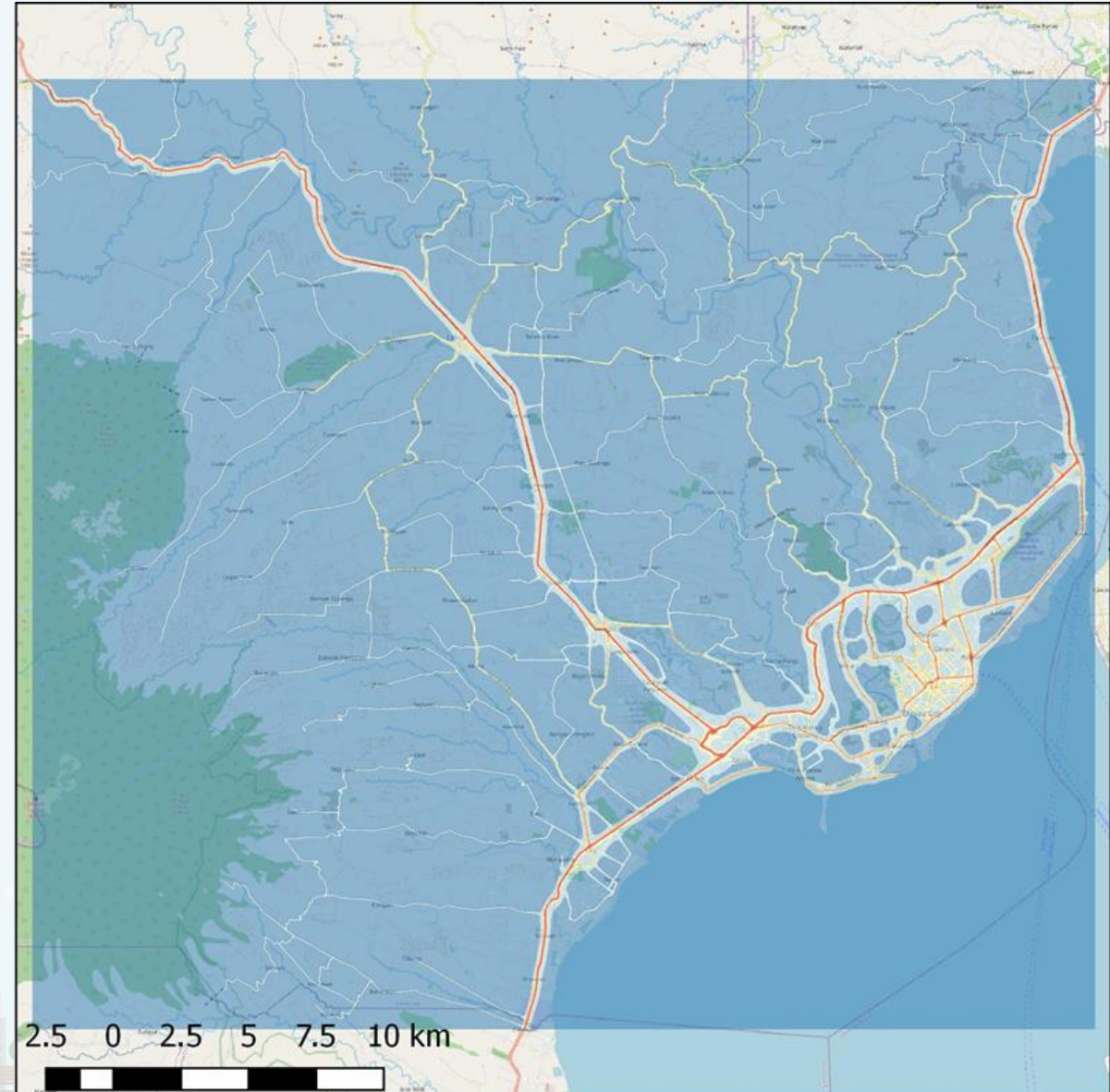
# Air Quality Impact Assessment for the Davao Public Transport Modernization Project

## What support did ACBSP provide?

- Assessed the air quality impacts of the upgrade of PUJs with the modern alternative vehicles as part of the project
- Provided an emissions inventory and air quality model
- Compared different upgrade scenarios

## Key outcomes

- Quantification of total pollutant (PM and NO<sub>x</sub>) emissions saved as a result of the vehicle upgrade
- Quantified reduction in airborne pollutant concentrations in the proximity of the current Jeepney and Filcab routes across Davao
- Calculated monetised health impacts for PM<sub>2.5</sub> and NO<sub>2</sub> reductions including mortality and morbidity



# Bengaluru Metro Rail Project

India





# Dust Management Capacity Building Workshop for the Bengaluru Metro Rail Corporation Limited

## What is the ADB project?

- Bengaluru is one of the most congested cities in the world
- The project includes an extension of current Bengaluru Metro Rail lines and construction of two new corridors
- Phase 1 – covers 42.3 km and is already fully operational
- Phase 2 – 72.1 km long, has been under implementation since 2020 and is due to be fully operational by 2024
- Aims to significantly improve the public transport situation in Bengaluru and reduce the number of private vehicles on the road



# Dust Management Capacity Building Workshop for the Bengaluru Metro Rail Corporation Limited

## What support did ACBSP provide?

- 1-day capacity building workshop on 21<sup>st</sup> April 2022 at the BMRCL conference rooms in Bengaluru
- Hybrid event
- Attendees were members of the BMRCL project team
- The workshop included a combination of technical presentations, group exercises and plenary discussions
- Topics covered:
  - International and national guidelines on implementing dust mitigation measures
  - Environmental management planning
  - Monitoring processes
  - Dust management and mitigation

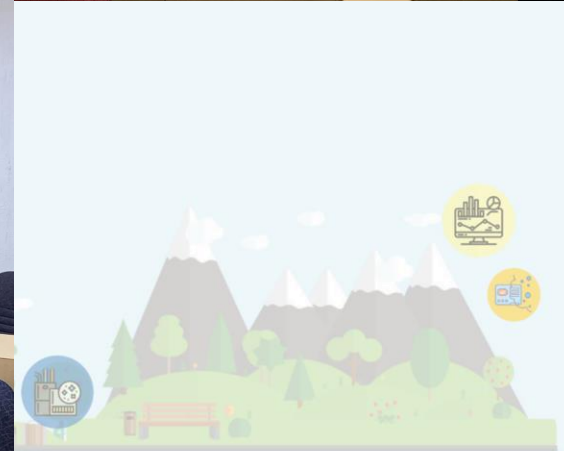


# Dust Management Capacity Building Workshop for the Bengaluru Metro Rail Corporation Limited

## Feedback received:

*“The session was very useful, and we will be able to apply some of the measures to reduce dust impacts on site.”*

*“Events of this type should be conducted more regularly and would be useful as both refresher courses and to share updated guidance.”*



# Greater Malé Waste-to-Energy Project

Maldives



# Air Quality Training for the Thilafushi WtE Facility, Maldives

## What is the ADB project?

- Establishing a solid waste management system for Greater Malé and its neighbouring outer islands.
- This will replace the current landfill mountain on Thilafushi which has been increasing in size for 30 years, compromises air quality, and contaminates the surrounding marine environment.



# Air Quality Training for the Thilafushi WtE Facility, Maldives

## What support did ACBSP provide?

- 2-day capacity building workshop on 30<sup>th</sup> / 31<sup>st</sup> May 2022 at the Maldives University Business School.
- Attendees included:
  - Electricity and Waste Regulators
  - Governmental representatives: Environmental Protection Agency, Ministry of Environment, Climate Change and Technology
  - Housing Development, Water and Sewerage companies
- Topics covered:
  - Discussing the new Waste Incineration Directive for the Maldives
  - Approaches to stack emissions monitoring and ambient monitoring for WtE facilities
  - Opportunities to use air quality data for public engagement



# Air Quality Training for the Thilafushi WtE Facility, Maldives

## Outcomes from the training

- Feedback showed that the majority of attendees benefited very much from the opportunity to gain a better understanding of these topics, to ask questions and have them answered, and to collaborate and exchange with other attendees.
- The trainers gained insight to the current implications of a lack of waste management system, the expectations of the Greater Malé WtE project, and how it will benefit the local community.



# Air Quality Training for the Thilafushi WtE Facility, Maldives

**Feedback question: “What was the most beneficial aspect of the workshop?”**

*“Learning more about the global context on WtE facility and relating it to Maldives context and how we can implement it here.”*

*“Learned more about establishing a good baseline before starting the WtE facility in Thilafushi.”*

*“The workshop was conducted in a very friendly manner. The topics were explained in a simple but also comprehensive way.”*

*“The workshop was conducted in a very interactive way with the participants and the trainers.”*

*“The opportunity to engage and share thoughts throughout the workshop.”*



# Thank you – any questions?



Tom Buckland

Associate Director

Ricardo Energy & Environment

[thomas.buckland@ricardo.com](mailto:thomas.buckland@ricardo.com)

