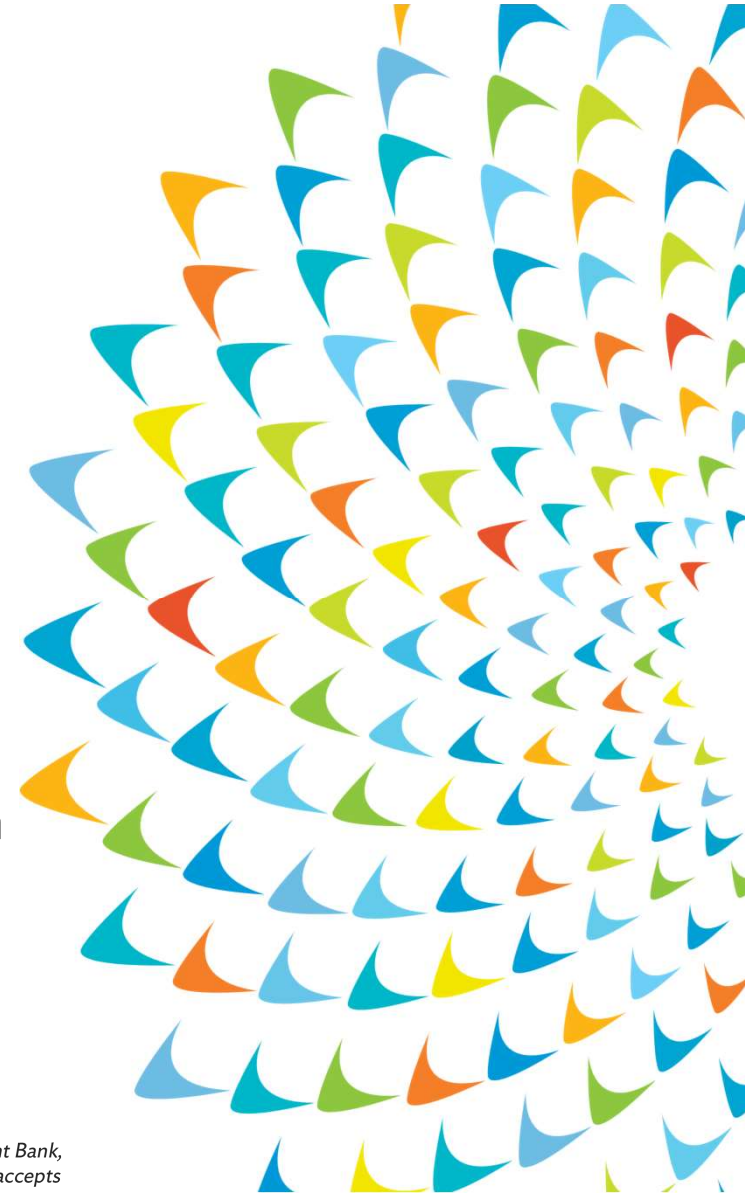




Clean Air Action Planning and the Role of the Health Sector

Glynda Bathan, Deputy Executive Director, Clean Air Asia
(ADB TA 9608 Consultant)

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Clean Air Action Plans (CAAPs) are key to improving air quality.

At city level, CAAPs mainstream air quality concerns in urban development.



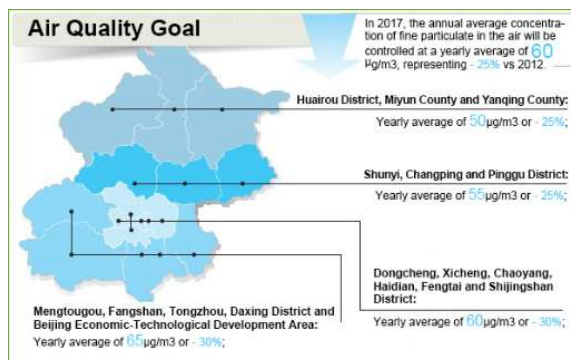
Clean Air Action Plans national & city levels – PRC

NATIONAL ACTION PLAN



SUBNATIONAL ACTION PLAN

2013-2017 Beijing Clean Air Action Plan



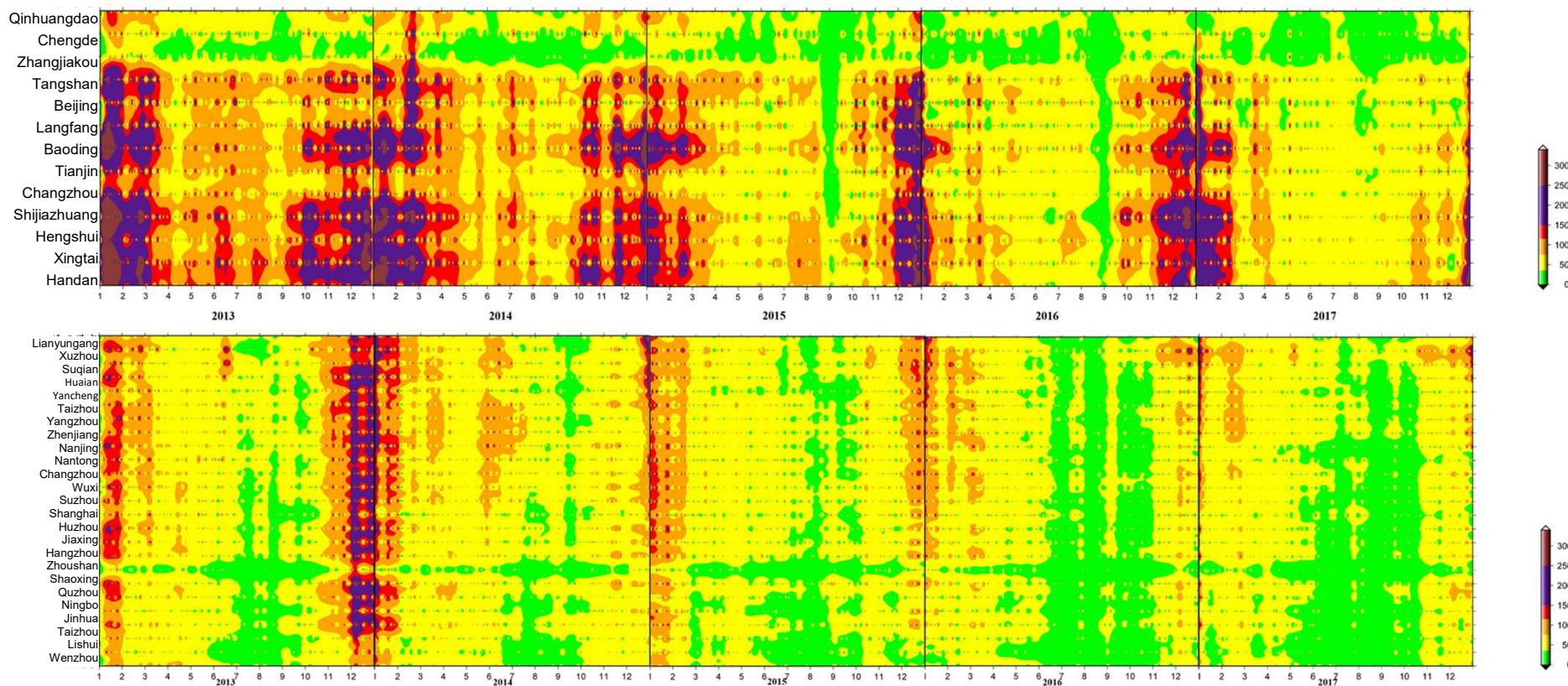
Eight Projects



Air quality mainstreamed in energy, transport, industry, urban development sectors



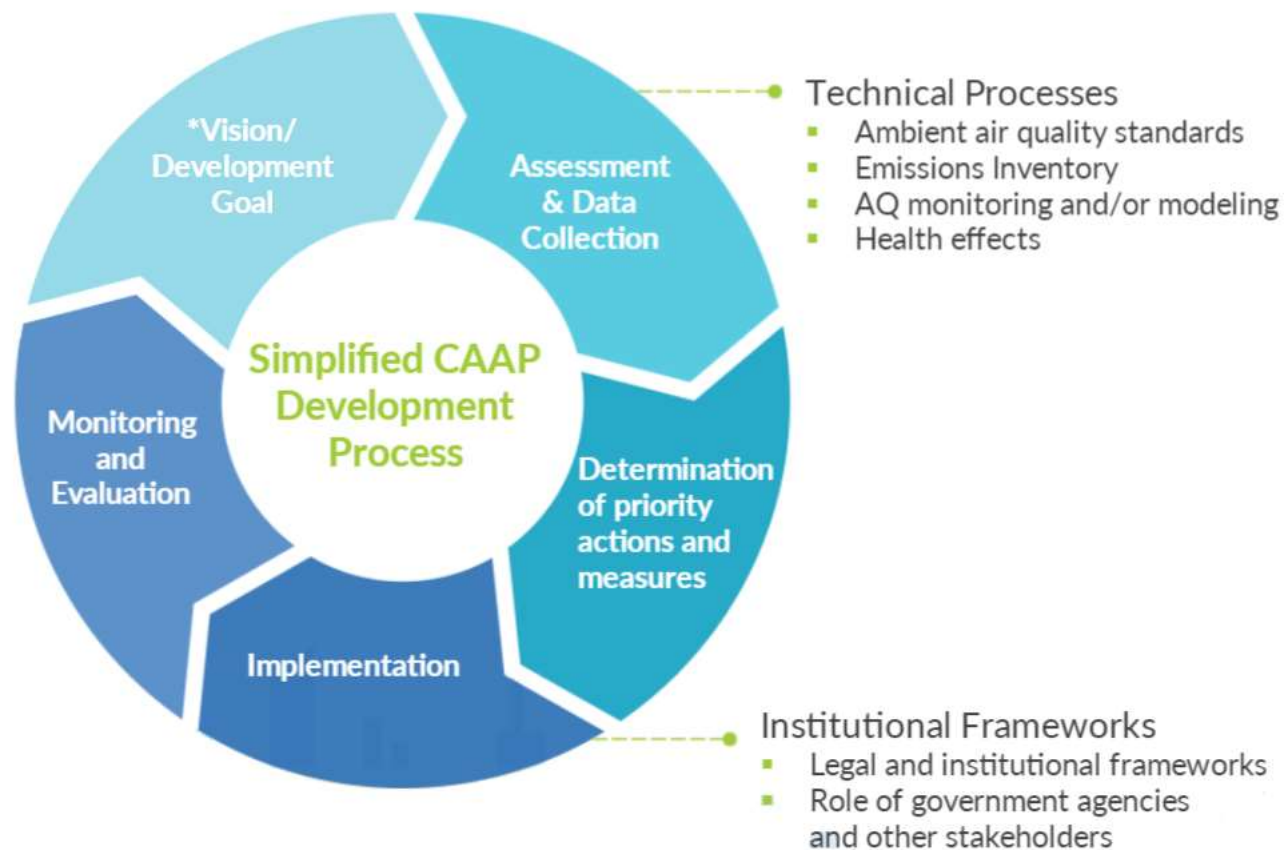
Significant AQ improvement in BTH & YRD (2013-2017)





Clean Air Action Plan development

Development of Clean Air Action Plans is a first step to addressing urban air pollution through health sector and other policies, plans, and programs





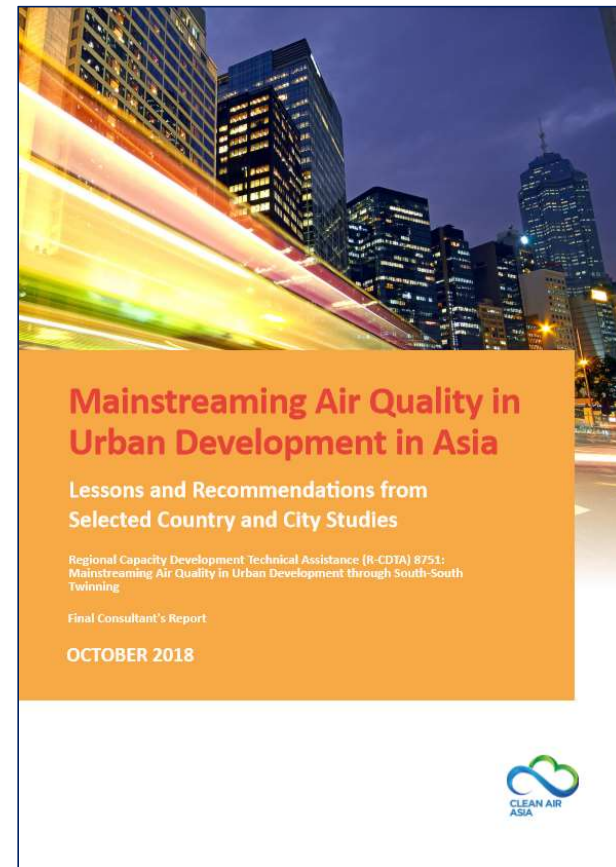
A Clean Air Action Plan

- sets clear air quality objectives or goals;
- prioritizes preventive and mitigation measures;
- clarifies roles of sectors and stakeholders;
- defines accountability, reporting, and monitoring; and
- is backed by a financial and investment plan.



Mainstreaming Air Quality in Urban Development in Asia

- Once the extent and causes of the air pollution problem are understood, the health sector must work with others at national and city level to develop and deliver on Clean Air Action Plans
- By the health sector and other sectors addressing air pollution, co-benefits for health (especially for maternal and child health), climate change, and the economy will occur



<https://www.adb.org/sites/default/files/project-documents/46250/46250-001-tacr-en.pdf>



The health sector plays many important roles in Clean Air Action Plan development and implementation



Philippines' Health & Air Pollution Action Plan

Further actions for addressing outdoor air pollution

A. Based on the NEHAP 2017-2022

According to the NEHAP 2017-2022, the objectives and strategies of the IACEH for the Air Quality and Health Sector are as follows:

- (a) Strengthen the enforcement of laws and standards on air pollution and GHG emissions.
- (b) Documentation and analysis of air pollution and health data and dissemination of information based on findings.
- (c) Improve the current air quality monitoring program.

The strategies to achieve the objectives for the sector include: (1) review EO 489 to identify areas to improve the functionality of IACEH; (2) establish better collaboration and partnership arrangements among IACEH members to improve responsiveness to issues and concerns; (3) establish an enforcement monitoring system and incentive scheme; (4) develop a capacity building program for the relevant personnel; (5) develop an advocacy plan on environment and health risks of pollution and GHG emissions; (6) create a database program that will support a real-time health-risk warning system that will be disseminated through EMB's air quality website, and; (7) review and evaluate the air quality monitoring program design in terms of the number and location of monitoring stations and the process of data collection, reporting and utilization.



Philippines' Health & Air Pollution Action Plan (Project Concepts with Estimated Cost)

Extended Concept Note 1

Project title:	Mitigating Pollution from the Transport Sector
Location(s):	TBD
Planned start date:	End 2019
Duration:	Five years
Proposed government coordinating agency:	Department of Transportation
Budget (In EUR):	3,999,450

Project Summary

The overall objective of this proposed project is to mitigate air pollution from the transport sector and reduce its impacts on human health. The target results and outputs are the following: (1) strengthened capacity of the government to implement environmental laws and management plans; (2) technical studies on vehicle inspection systems, emission standards, air quality monitoring design, health impact studies, freight operations and management of decommissioned vehicle scrappage; (3) policy recommendations and advocacy for policy adoption; (4) monitoring and evaluation of pollution impacts and integrated management planning; and (5) information management and utilization.



Strengthening Knowledge and Actions for Air Quality Improvement (ADB TA 9608)

- Clean Air Action Plans including investment estimates for air pollution control will be developed for 3 primary cities and 4 secondary cities in Asia (including **Erdenet, Mongolia**)
- In doing so:
 - Cities' current air quality situation and management practices will be assessed
 - Innovative cost-effective technological and policy options for addressing air quality management will be evaluated, referring to experience of PRC and other countries

The People's Republic of China Poverty Reduction and Regional Cooperation Fund (PRC Fund)



URBAN CLIMATE
CHANGE RESILIENCE
TRUST FUND
Asian Development Bank



5 October 2018 - 30 September 2021

\$2.5 million

ADB Assistance Fund	Technical Special Fund	People's Republic of China Poverty Reduction and Regional Cooperation Fund (PRCF)	Republic of China Poverty and Regional Cooperation Fund	Urban Climate Change Resilience Trust Fund (UCCRTF)	Climate Resilience Fund
\$500,000		\$800,000		\$1,200,000	





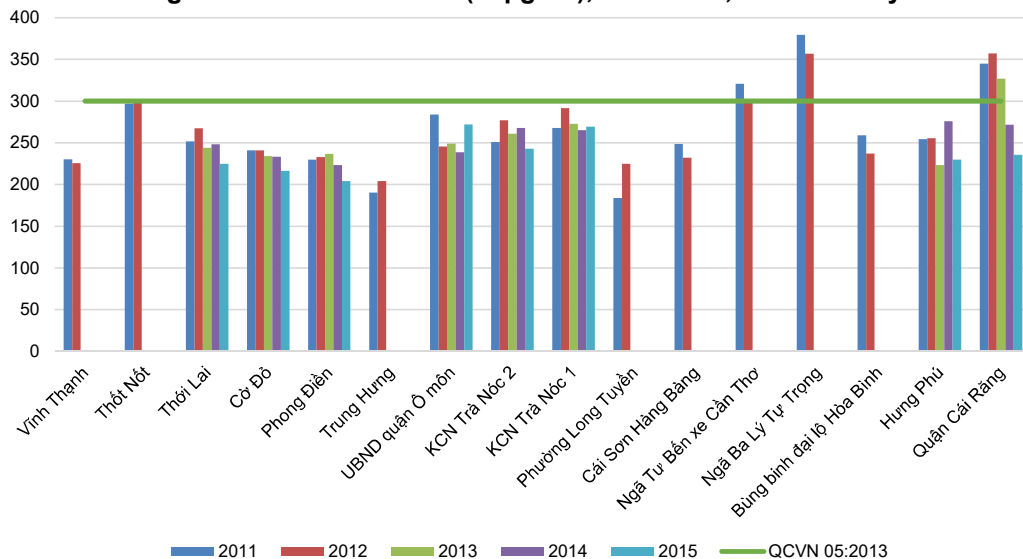
Can Tho City, Viet Nam CAAP development



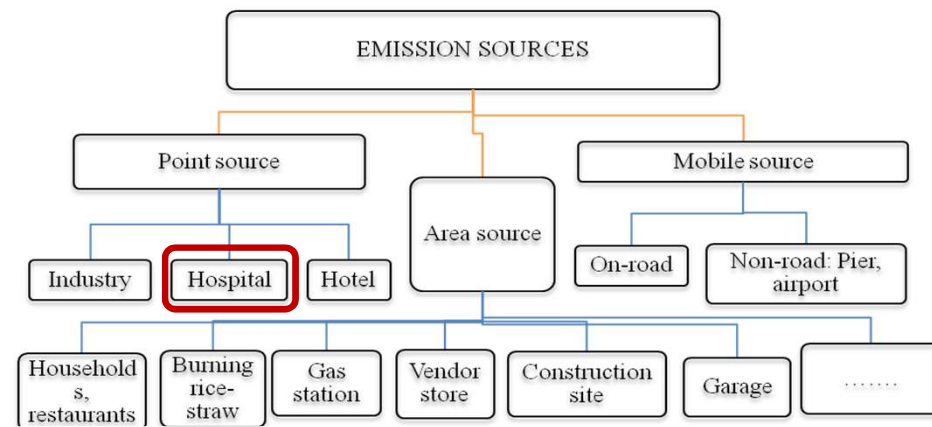


Can Tho City: AQ Data & Emission Inventory

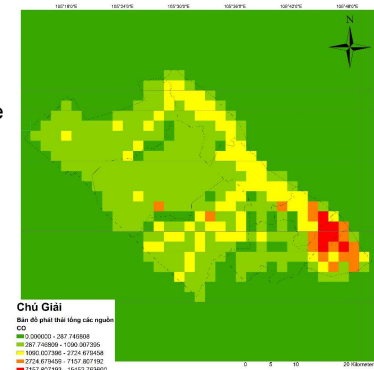
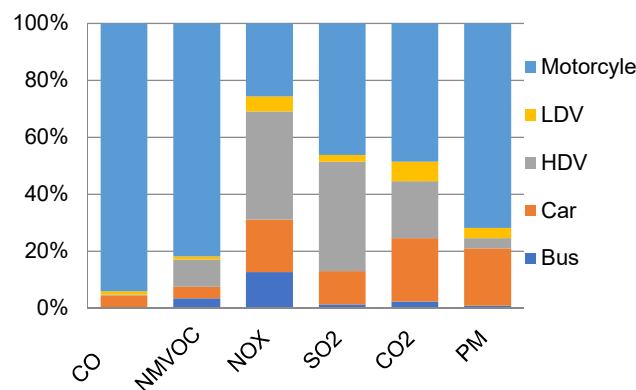
Average dust concentrations (in $\mu\text{g}/\text{m}^3$), 2011-2015, Can Tho City



- Ambient Air Quality Monitoring Data
- EI Data in percentage and spatial maps



Emissions share per vehicle type





Bogor City, Indonesia CAAP development



TAKE ACTION!

“Where are we now?”

I. Status of Air quality and its Management

- Compile existing data
- Collect additional data as needed

II. Understanding Air Pollution and Climate Impacts

“Where do we want go?”

III. Objectives for Clean Air of Bogor City

“How do we get there?”

IV. Control Measures

V. Monitoring Framework

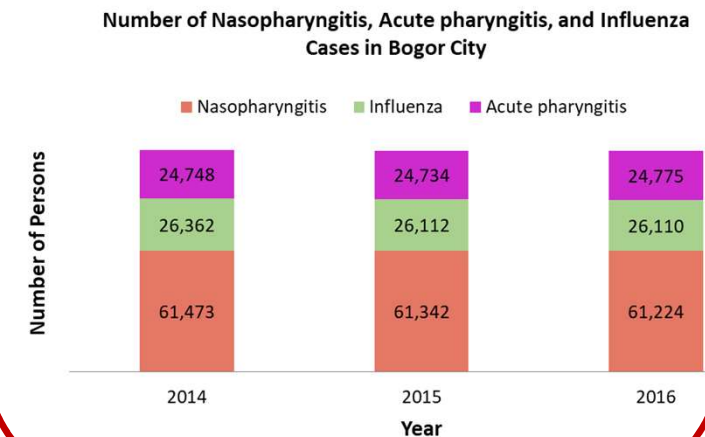
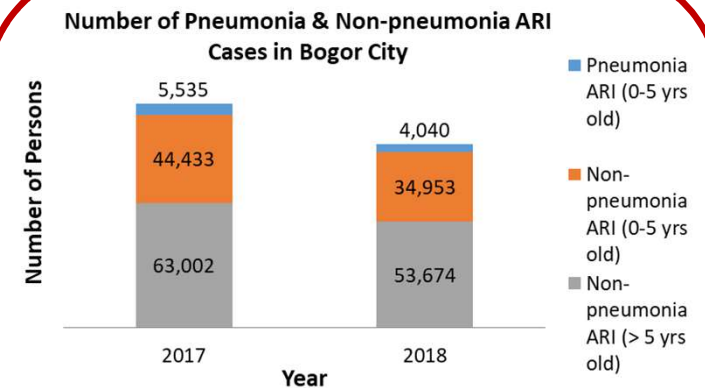
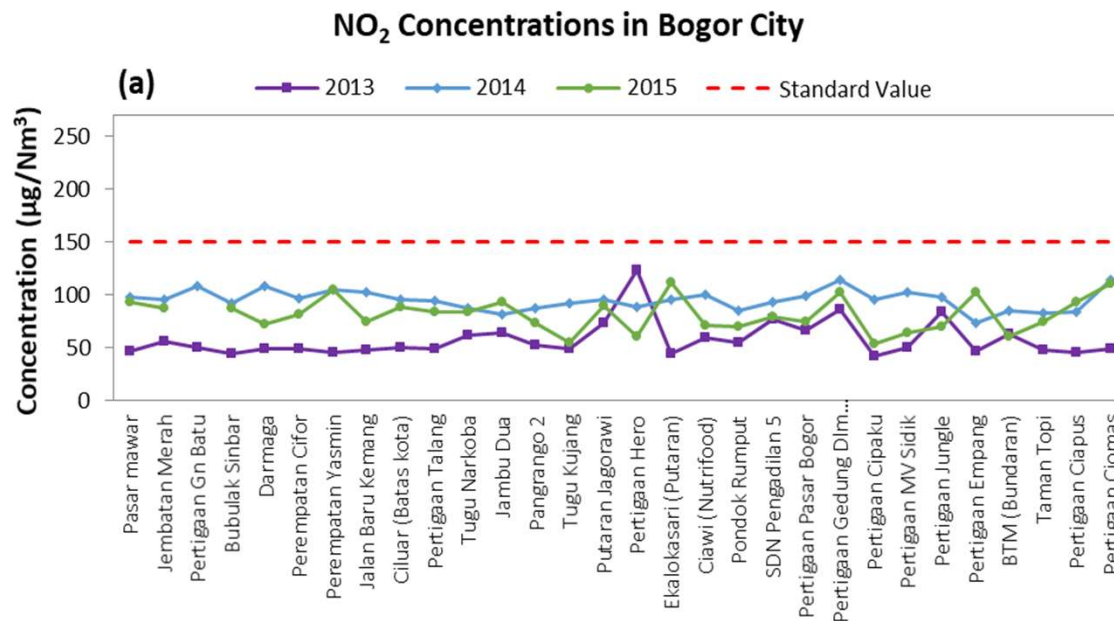




Bogor City science-based CAAP formulation

(Step 1: Assessment)

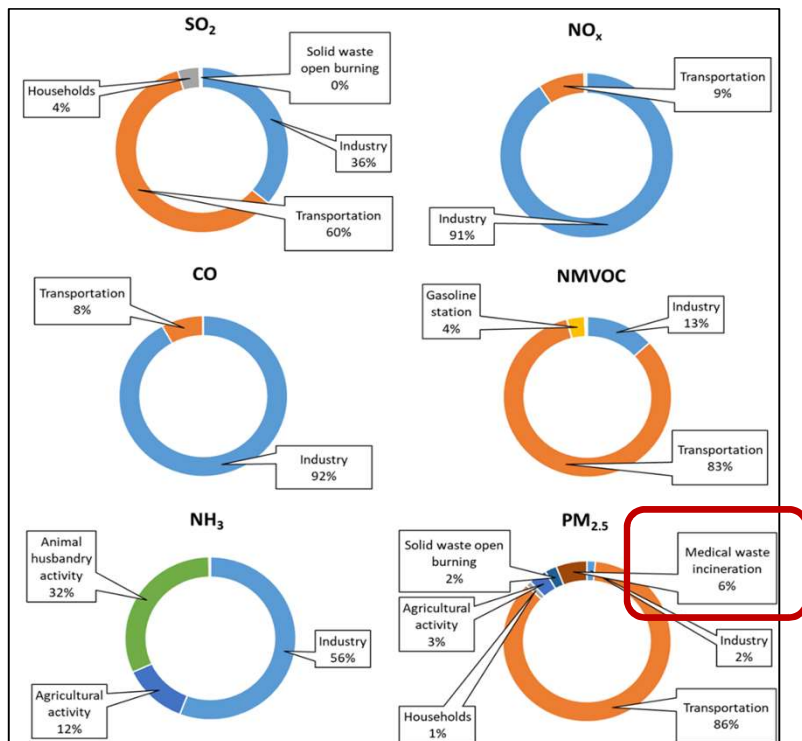
- Ambient Air Quality Monitoring Data
- Respiratory Health Cases





Bogor City science-based CAAP formulation (Step 1: Assessment)

- Emissions Inventory – top-down approach (pollution sources)



Source/Sector	Information	Parameter								
		SO ₂	NO _x	CO	NMVOC	NH ₃	PM ₁₀	PM _{2.5}	BC ^a	OC ^a
I. Point Sources										
Industry ^b		NE	x	x		NE	x		NE	
II. Area Sources										
2.1. Industry ^c	Natural Gas	x	x	x	x	x	x	x	x	x
	Coal	x	x	x	x		x	x	x	x
2.2. Household and commercial	LPG	x	x	x	x		x	x	x	x
	Natural Gas	x	x	x	x		x	x	x	x
2.3 Fugitive Gas Station Emission ^b	Filling the fuel storage tank	NE			x	NE				
	Charging fuel to the vehicle				x					
2.4 Agricultural activities	Open burning of straw	x	x	x	x	x	x	x	x	x
	Use of fertilizer		x			x	NE			
2.5 Farm Activities ^b	Livestock Management	NE				x				
	Manure Management					x				
2.6 Solid waste open burning		x	x	x	x	x	x	x	x	x
2.7 Processing medical waste with an incinerator ^b		x	x	x	x	NE	x	x	x	x
III. Mobile Sources										
Motorized vehicles on the highway	Gasoline	x	x	x	x	NE	x	x	x	x
	Diesel	x	x	x	x	NE	x	x	x	x



Bogor City science-based CAAP formulation

(Step 2: Planning)

Baseline condition from the part I: Assessment +
emission inventory for air pollutants



CAAP Objectives: RPJMD and other document

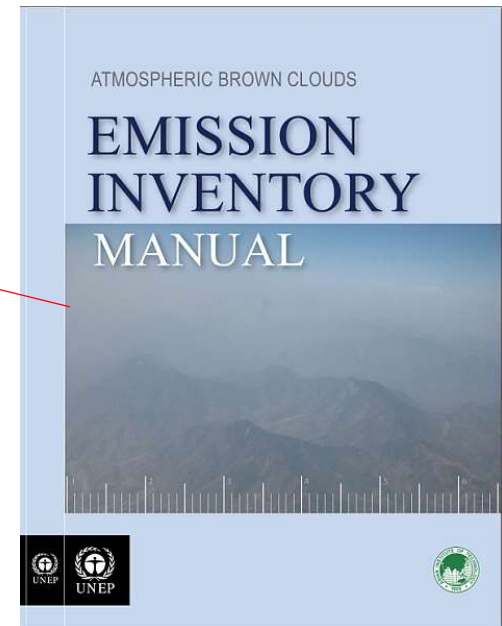


Development of source sector measures:

- Key activities
- Target pollutants
- Duration and cost
- Focal agencies and person involved
- Scope

Monitoring framework:

- Output
- Performance target/indicators



Stakeholder consultative meeting



Revised draft of CAAP



Bogor City science-based CAAP formulation

(Step 3: Implementation)

Source/Sector	Output	Indicator
Mobile sources	MV Emission reduction	- Reduced emissions based on latest EI - Increased number and coverage of BRT services - Non-exceedance of AQ standards
Area sources	- Ban and monitoring of straw burning and waste burning; Proper waste disposal - IEC and counseling - Implementation of climate villages & energy saving programs in the commercial sector	- Decrease of burning practices - Increased climate village participants from time to time - Non-exceedance of AQ standards
Point sources	- Update of emissions data from the Industrial Sector for the City of Bogor - Portal on the DLH website for reporting - Chimney emission testing	- Web system and point source emission data database on the DLH website, active online participation - Updated Bogor City point source EI data - Non-exceedance of AQ standards
Management capacity and community care	- EI Training program - More frequent ambient AQ monitoring - Implementation of air pollution control community programs	- Emission inventory updated every 5 years - More AQ data - Community reporting of violation - Improved levels of public health (lower ARI)

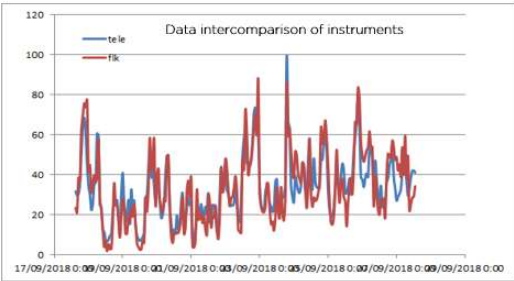
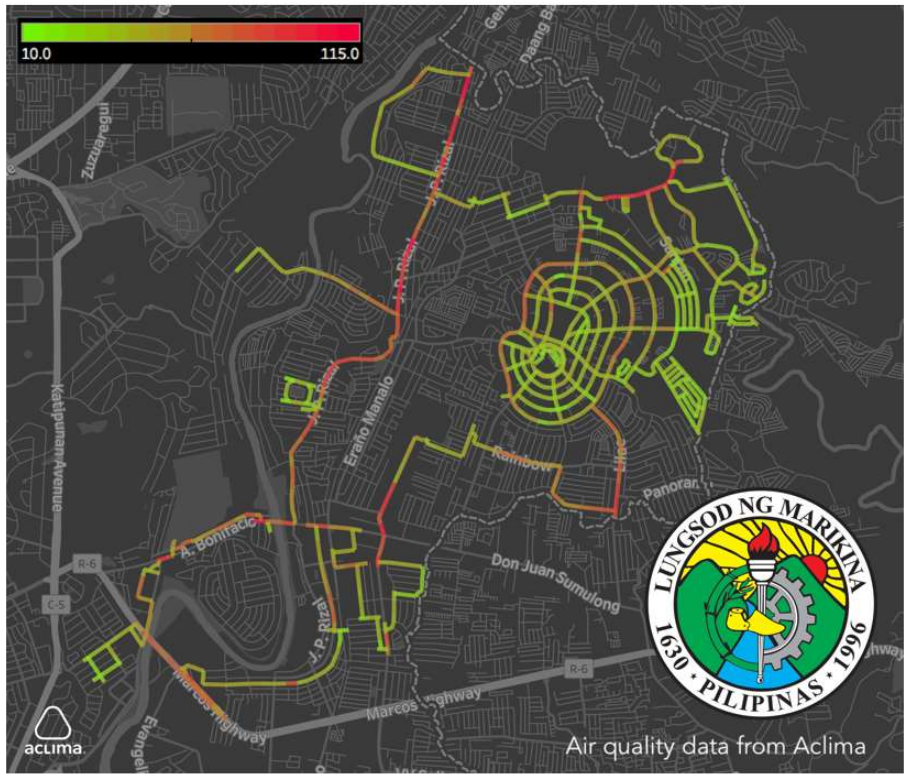
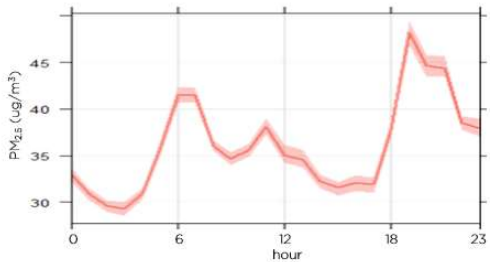
CLEAN AIR ACTION PLAN DEVELOPMENT IN MARIKINA CITY, PHILIPPINES

Emission Inventory

Air Quality Monitoring
(Stationary and Mobile)

Health Impacts
Assessment

Stakeholder
Consultation





Marikina City CAAP development partners





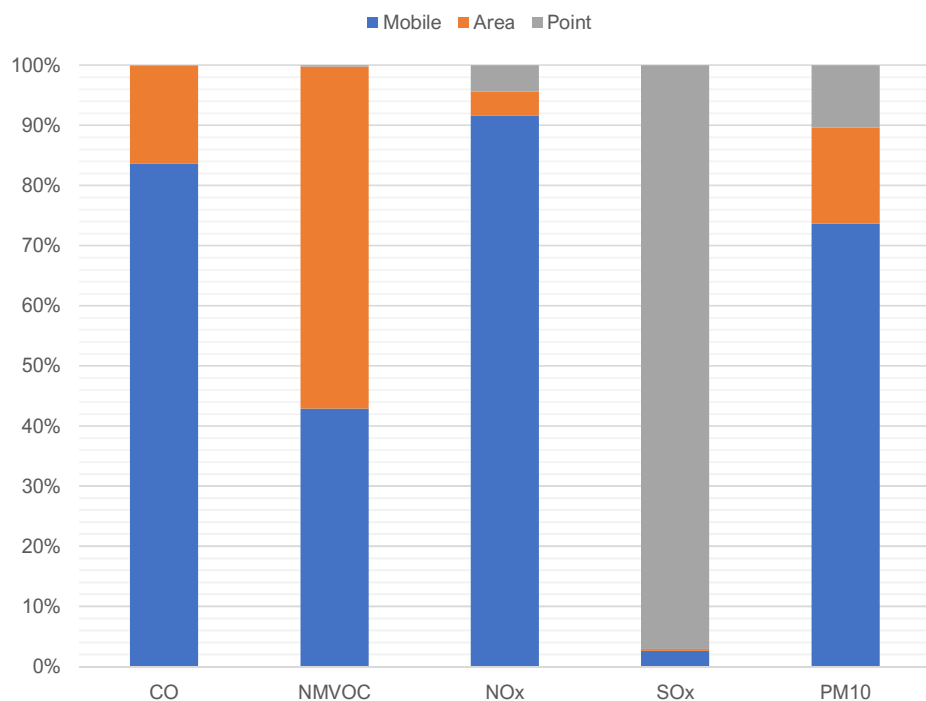
Marikina City: Data Needs, Collection & Analysis

Data Needs	Availability/Challenge	Solutions/Collection	CAAP Significance
Air Quality Data	Limited; Not in high resolution	Coordination with DENR EMB Support from private and academic sector (stationary and mobile monitoring)	Identification of areas of priority and impacts of human activity to air quality
Emissions Data	Very limited to none	Baseline data collection through surveys	Identification of emissions sources for actions
Health Data	Available from City Health Office	Coordination with CEMO and CHO	Identification of priority barangays



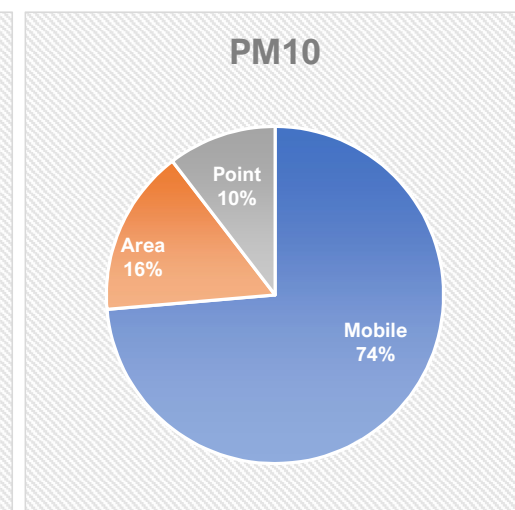
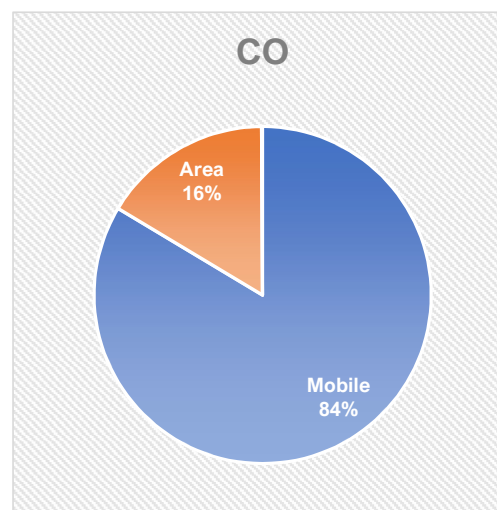
Marikina City: Preliminary results of emissions inventory

Emission Sources of criteria pollutants in Marikina



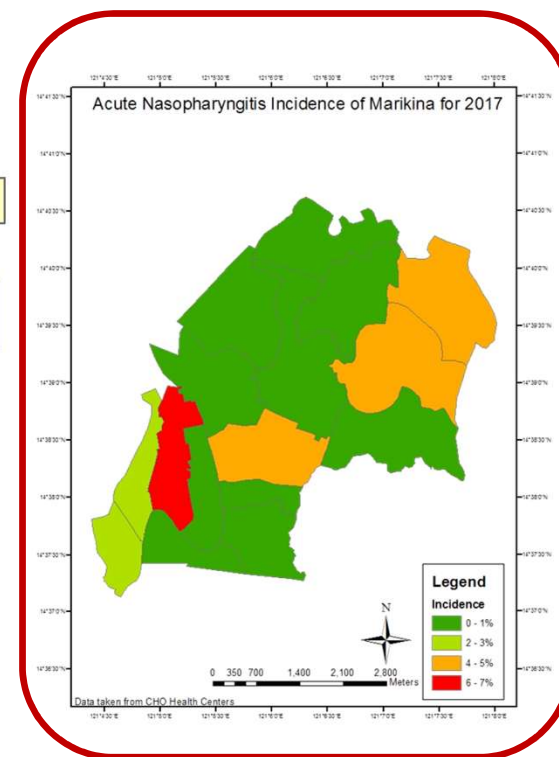
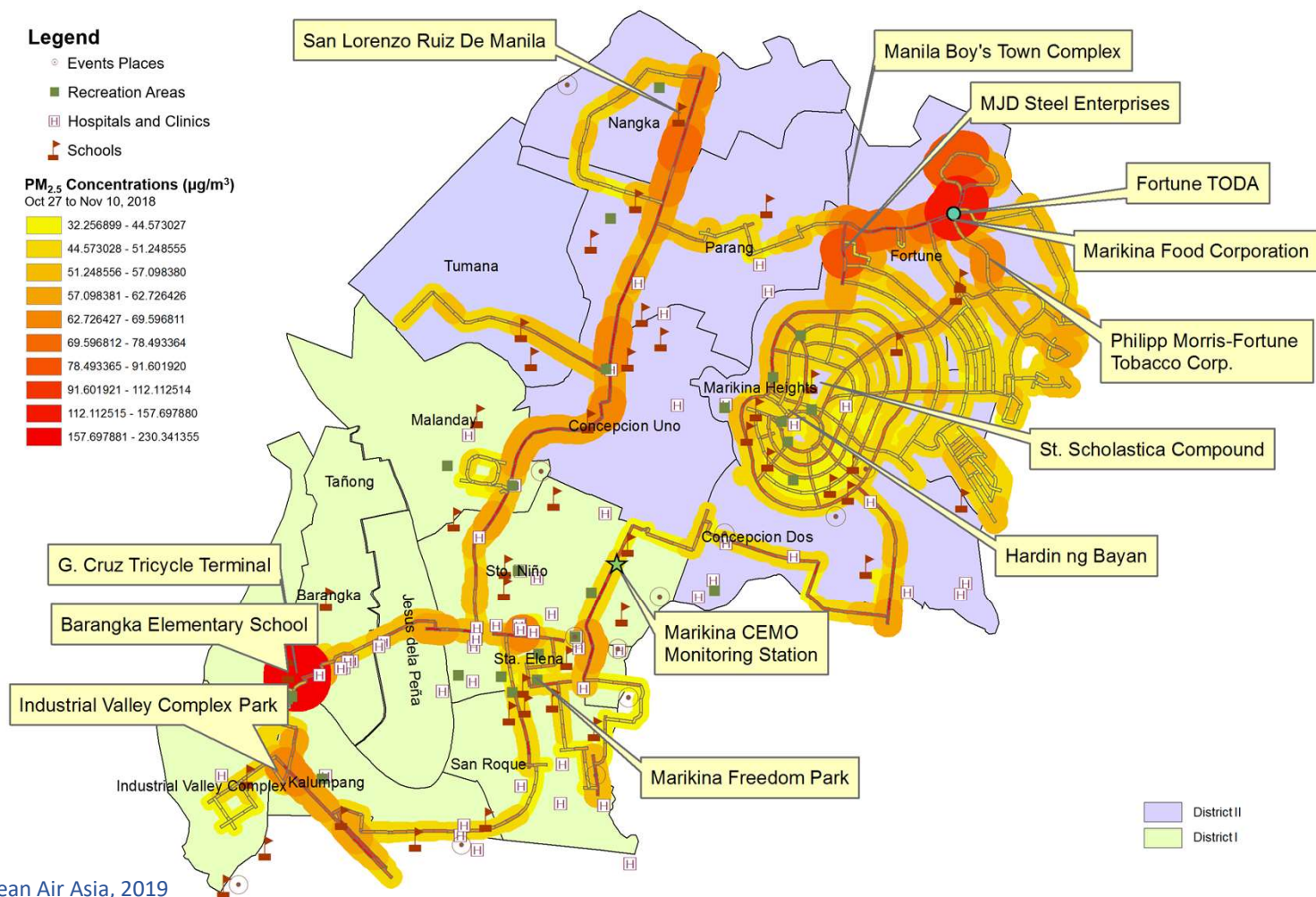
Total Emissions (tons/yr)

Source	CO	NMVOC	NOx	SOx	PM ₁₀
Point	9.7	6.2	39.2	336.0	27.5
Area	1,567.6	1,485.1	35.8	1.1	42.1
Mobile	8,035.9	1,119.2	820.8	9.0	194.5
Total	9,613.2	2,610.5	895.8	346.1	264.1





Marikina City: Preliminary results of data baselining





Conclusions

- Clean Air Action Plans (CAAPs) are key to improving air quality. At city level, CAAPs mainstream air quality concerns in urban development.
- A Clean Air Action Plan sets clear air quality objectives or goals; prioritizes preventive and mitigation measures; clarifies roles of sectors and stakeholders; defines accountability, reporting, and monitoring. It needs to be backed by a financial and investment plan.
- The health sector plays an important role in Clean Air Action Plan development and implementation.



11th Better Air Quality Conference

BAQ 2020
21-25 September

Century City International
Convention Centre
Chengdu, China

Organized by



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Thank you.

