



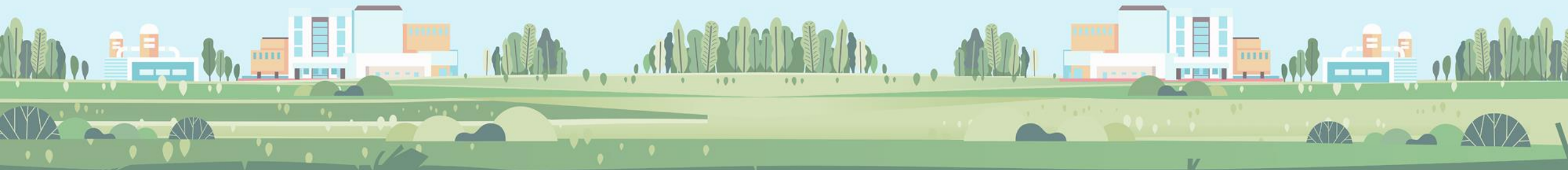
Practical approaches and opportunities for integrating climate and air pollution action

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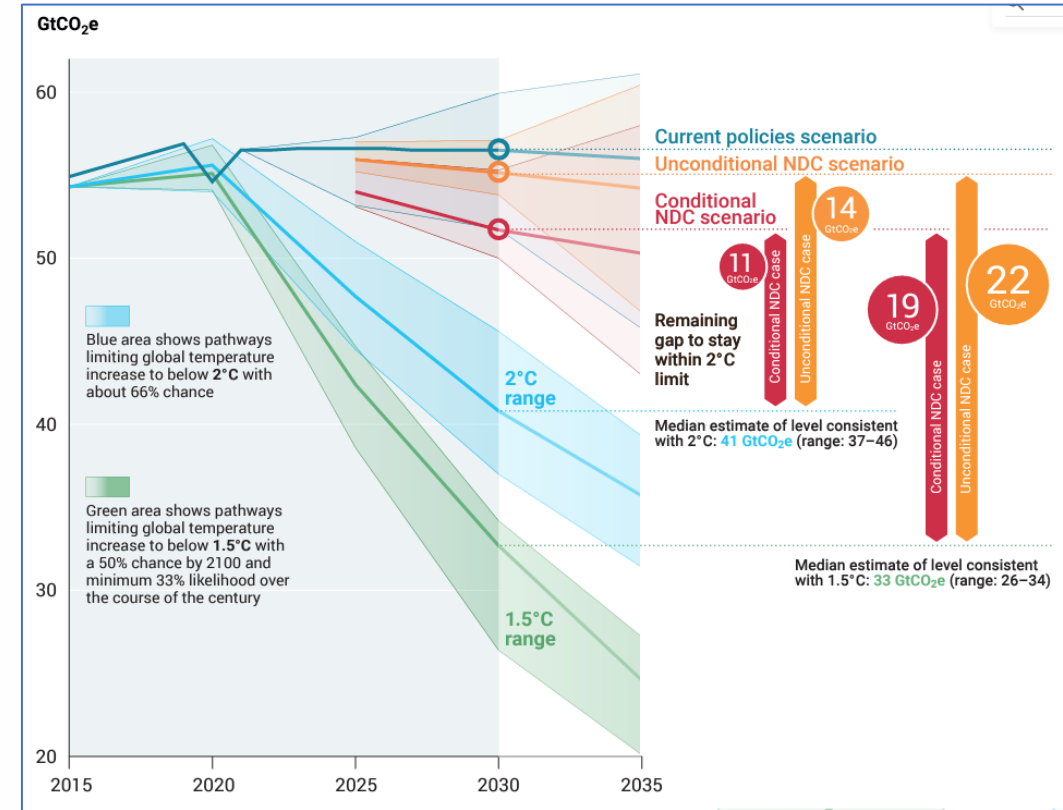
About this presentation

- Overview – climate and air quality integration opportunities – focus on urban areas
- Enhancing integration of climate and air quality – key opportunities
 - Opportunities across action planning processes, data, and engagement
 - City examples
- Examples of successful city-level actions



Climate change progress and challenges

- Unprecedented action is needed by all countries
- Need to meet pressing development needs alongside a transition away from fossil fuels
- Future demand growth dominated by urban areas - *the potential for avoided emissions is greatest there... with numerous social and environmental benefits*
- Global Stocktake under the Paris Agreement:
 - Cut GHGs by ~43% by 2030 and 60% by 2035 from 2019 levels, net-zero CO₂ by 2050
 - Transformative change across all sectors



Source: <https://www.unep.org/resources/emissions-gap-report-2023>



Why integrate climate and air pollution?

Climate change is the biggest global environmental challenge facing society

Air pollution is one of the most significant local environmental issues faced in urban areas

Climate

- Long term
- Global issue
- Collective action, transboundary
- Transformational, economy-wide actions
- Strategic, city-wide, integrated plans

?

Air Pollution

- Shorter term
- Local issue
- Local action (mostly)
- Immediate, specific actions
- Strategic, targeted, integrated plans

Cities are the key to integrated action

- Cities setting **ambitious climate action plans** and **targets** – can help to raise national and global ambition, transform cities, deliver GHG reductions
- **Urgent, pressing need** and desire to tackle **air pollution** – can drive catalyze action
- Much greater emphasis on **joined up thinking** at city / regional level
- [Coalition for high ambition multilevel partnerships](#) (CHAMP)

- ✓ Same sources, many of the same solutions
- ✓ Multiple co-benefits of solutions that can be maximized
- ✓ Similar technical basis (skills, capacity, knowledge, data, systems)
- ✓ Potential for greater government efficiency
- ✓ Leveraging transformational, city-wide change
- ✓ Supporting local communication and buy-in

- Institutional barriers: CC and AQ generally dealt with by different departments
- Disconnected planning: Long-term climate planning vs short term AQ action
- Costs/savings: generally funded and accounted for separately
- Different drivers: “sustainability”, reputation vs health, legislation...

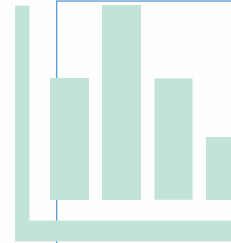


Enhancing integration – some key opportunities



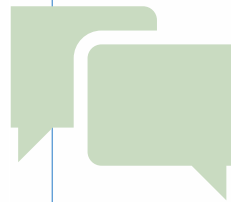
A. Action planning processes

- Prioritising actions
- Designing and implementing actions
- Governance



B. Data and data systems

- Integrated data collection, reporting and tracking processes
- Making best use of available data



C. Communication and engagement

- Civil society and stakeholders
- Implementing partners



A. Action planning processes - 3 example opportunities

- Different plans, complementary processes
 - A. Clear ownership and responsibility
 - B. Prioritising actions
 - C. Designing and implementing actions
- ✓ Maximise synergies, minimise trade-offs
- ✓ Ensure long and short-term considerations
- ✓ Consistent policy approach
- ✓ Efficiency (budgets, processes)



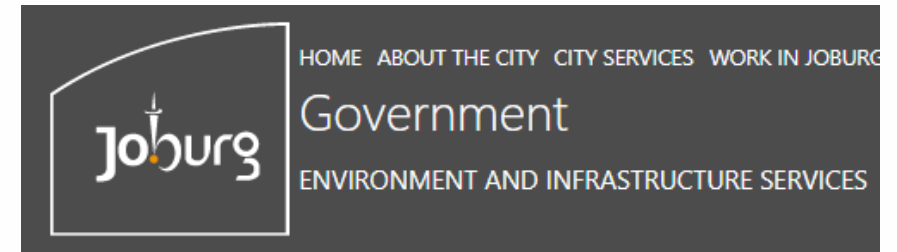
Source:

- [https://joburg.org.za/departments_/Documents/EISD/City%20of%20Johannesburg%20-%20Climate%20Action%20Plan%20\(CAP\).pdf](https://joburg.org.za/departments_/Documents/EISD/City%20of%20Johannesburg%20-%20Climate%20Action%20Plan%20(CAP).pdf)
- https://joburg.org.za/documents_/Documents/By-Laws/2022/City%20of%20Johannesburg%20%20AQMP%202019.pdf



1. Clear ownership and responsibility

- Ensuring that there is clear ownership and responsibility for AQ and CC action planning
 - Integrated teams - *where possible...*
 - Working group / steering group / task force for joint action & reporting
 - Coordinator / champion to work across areas
 - Knowledge-sharing activities
 - Clear roles and responsibilities
 - Utilising existing reporting structures, KPIs, mandates
- Streamlined coordination
- Effective implementation - buy-in by all key decision-makers, implementers, departments
- Efficiency (budgets, processes)
- Clearer internal and external messaging



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ENVIRONMENT AND INFRASTRUCTURE SERVICES

Air Quality and Climate Change

Reduce impacts of climate change
Implementation of CC Strategic Framework
Diversification of energy mix
Acceptable ambient air quality

Director's
portfolio
combines
CC & AQ –
same team

2. Prioritizing actions

- Include key stakeholder voices in prioritization processes
- Systematic prioritisation process - impartially assess impacts and benefits
 - Simple stakeholder consultation
 - Qual/quant multicriteria analyses
 - Complex cost-benefit analyses

→ Improving selection of actions, ensuring positive impact, avoiding trade-offs

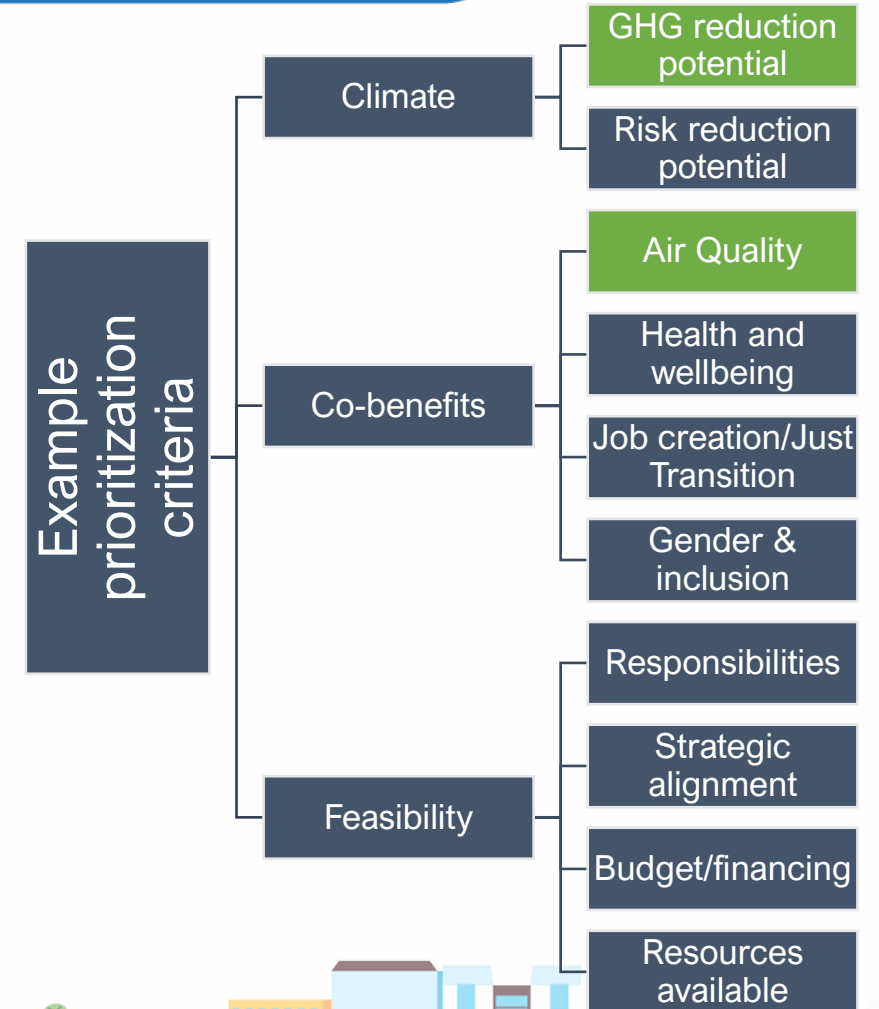
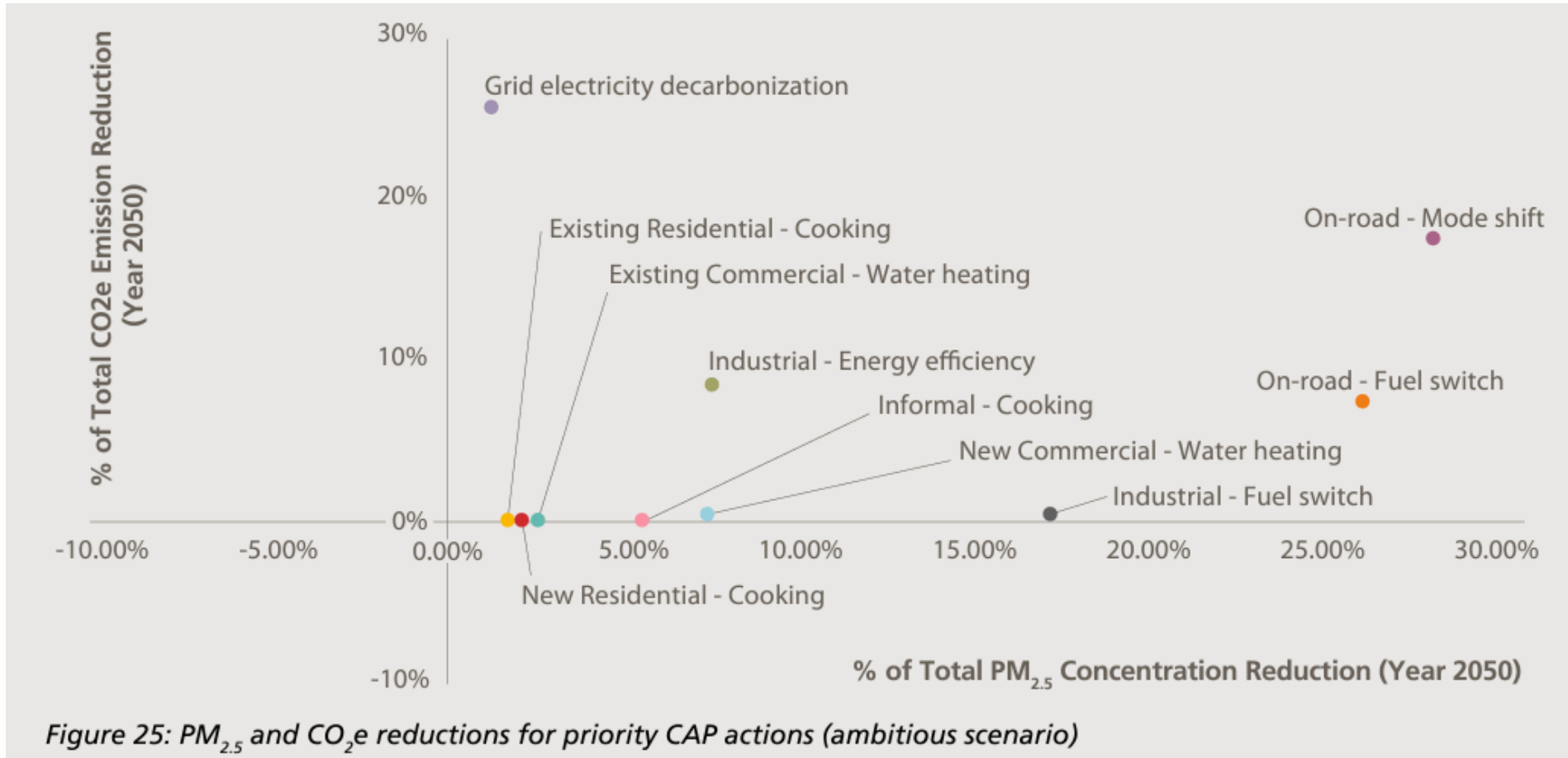


Figure 3: Benefits of climate action for the City of Johannesburg

2. Prioritizing actions



Actions assessed for AQ & GHG reductions – informed prioritization



3. Designing and implementing actions

- Actively integrate AQ/CC actions into plans
 - Co-develop activities with stakeholders – ensures robustness and feasibility
 - Stakeholder engagement and co-working
 - Technical working groups/sector groups
- Improving design of actions
- Reflecting actions consistently in plans (helping to mainstream, ensure awareness, secure funding, provide a common message)

G2 5.1 Health and air quality

Action: Optimal air quality under a changing climate
 This action aims to improve liveability and community health by developing air quality standards, enhancing air quality monitoring and increasing enforcement of emissions regulations.

Lead Authorities
 • EISD

Supporting Authorities
 • Health Department

Partners
 • National Department of Environment
 • Forestry and Fisheries
 • National Department of Health
 • Gauteng Department of Health
 • Gauteng Department of Agriculture and Rural Development
 • private sector

Benefits
 Health Direct, Environmental Direct, Economic prosperity Direct, Public service delivery Direct, Inclusivity and civil society Direct

Scale	Timeframe	Job creation	City costs	Non-city
City	5-10 Years		Capex Opex	Capex Opex
Risk reduction				
Primary hazard	Reduction of exposure	Reduction of sensitivity	Enhancement of adaptive capacity	Risk of maladaptation
Extreme hot days				No

Sub-action	Action type
Adopt WHO guidelines as the City's air quality target.	
Assess the effects of climate change and its impacts, such as increased incidence of fires, on air quality.	
Enhance the City's human resource capacity to enable better enforcement of the air pollution control by-law.	
Increase air quality monitoring capacity within the city.	

Ensures visibility, identifies stakeholders, funding needs etc & holds city to account

Source: [https://joburg.org.za/departments/_Documents/EISD/City%20of%20Johannesburg%20-%20Climate%20Action%20Plan%20\(CAP\).pdf](https://joburg.org.za/departments/_Documents/EISD/City%20of%20Johannesburg%20-%20Climate%20Action%20Plan%20(CAP).pdf)



Case study: Quito's electric buses

- High altitude, old private buses, low-quality fuels, contribute to poor air quality
- Citizens asking for bolder and bigger actions, government is committed to reducing air pollution, to guarantee a healthier city and better living standards
 - Procuring a total of 70 electric buses for the urban area (~10% of the city and almost 90% of the total population)
 - Engaging with the city's sixty public transport companies – guaranteeing that, every year, each company switches at least one diesel for one zero-emission between 2020 and 2025.
 - Scaling up the number of electric buses would bring about significant health, cost, AQ and GHG benefits
 - Also exploring electric taxis

Source: <https://www.c40.org/wp-content/uploads/2022/02/Quito-%E2%80%93-Upgrading-the-Municipal-Bus-Fleet-from-Diesel-to-Electric-English.pdf>

**52% OF THE CITY'S GHG
EMISSIONS COME FROM THE
TRANSPORT SECTOR**

**31% OF THE TOTAL
PM_{2.5} CONCENTRATION IS
GENERATED BY BUSES**



B. Data and data systems

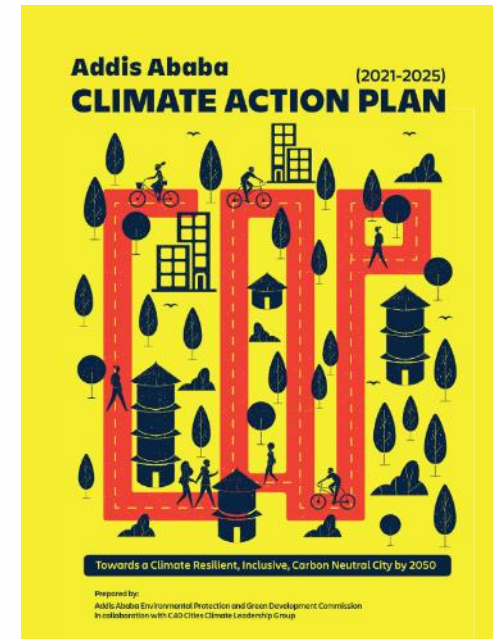
1. Integrated data collection, reporting and tracking processes
2. Making best use of available data

- ✓ Reduce burden on providers of data
- ✓ Efficiencies in data systems
- ✓ Maximise skills and knowledge of staff
- ✓ Better evidence-based decision making



1. Integrated data processes

- Integrated approaches (MRV system) including
 - Data collection, data flows
 - Inventories and modelling (e.g. [Pathways AQ](#), LEAP-IBC and IIASA's GAINS model)
 - Tracking and reporting processes
- Methods and tools
 - Single template or data reporting (IT) system
 - Common set of indicators for tracking actions
 - Single progress reporting process
 - Aligned planning processes
 - Frameworks for integration into sectoral plans and action development



Addis Ababa - integrated GHG and AQ inventory and modelling to identify and quantify opportunities to reduce PM2.5 and GHGs

“Currently, the city transport bureau is also preparing a transport sector environment and air pollution strategy which will address GHGs and air pollution.”

2. Making best use of data

- Same sources, same/similar data
 - Reduce burden on data providers by integrating requests
 - Utilise all available data and information, enhancing analysis
- Going 'beyond inventories' to inform policy, track progress
 - GHG inventory data historical and high-level – not useful for developing and tracking actions
 - AQ data could support progress tracking e.g. monitoring data
 - Growing engagement on data for climate reporting – opportunity to leverage for evidence and engagement

Air pollutant emissions are also projected to grow. Using the Pathways-AQ rapid scoping tool, under the BAU scenario, annual average PM_{2.5} concentrations are expected to increase by 71% between 2016 and 2030, 59% between 2030 and 2040 and 75% between 2040 and 2050 (Figure 11).

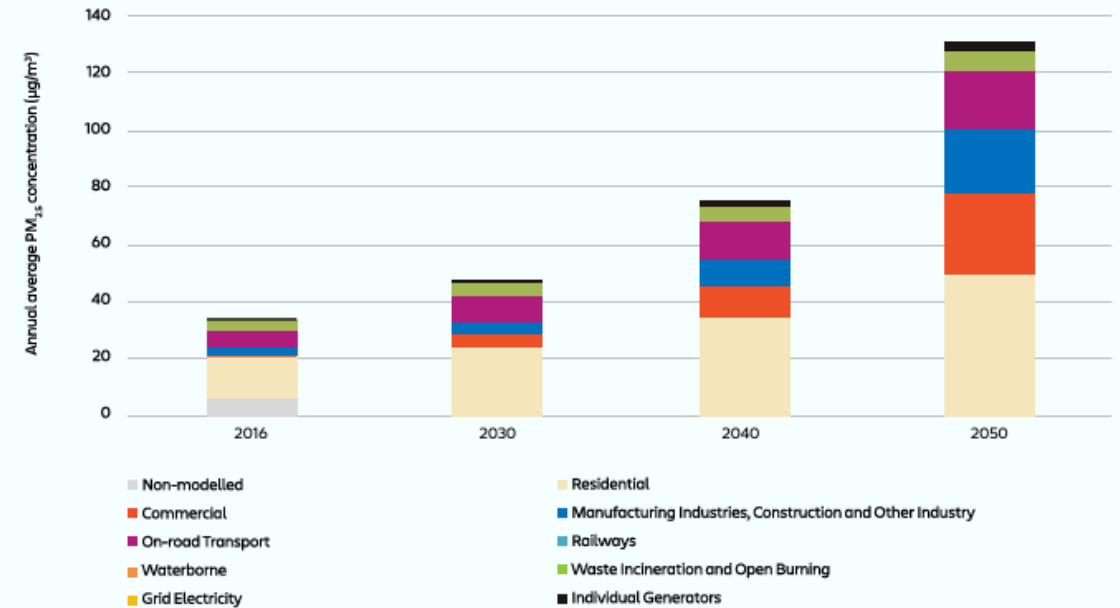


Figure 11. Baseline PM_{2.5} concentrations (from scope 1 and scope 2 emissions).⁴⁰

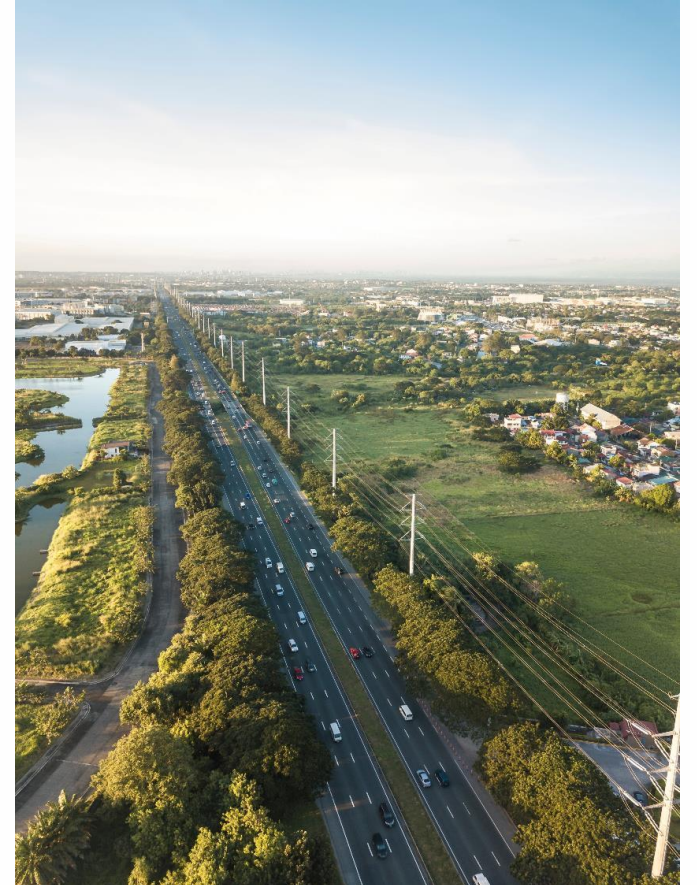
Source:

https://cdn.locomotive.works/sites/5ab410c8a2f42204838f797e/content_entry5ab410faa2f42204838f7990/5ab560bda2f4220acf45cfac/files/Addis_CAP_English_Sep.15_2021.pdf?1635321322



Case Study: Santa Rosa, Philippines

- Clean Air Asia's Cities for Clean Air initiative from 2016 to 2018 as a pilot city
- Implemented a set of actions on engaging stakeholders, consolidating and communicating air quality information, and taking measures to reduce emissions
- Recognized air pollution as a multi-sectoral issue addressed by different city departments
 - Executive (or Mayoral) Order signed to form the **Santa Rosa Clean Air Core Team for the Clean Air Program**
 - **Inter-agency group** composed of representatives from the environment, planning, health, traffic management, and others



Case Study: Santa Rosa, Philippines

- **Integrated inventory** – used as the basis for identifying measures that had the biggest impact on both air pollutants and GHGs
- **Santa Rosa City's Clean Air and Climate Action Plan** – combined plan to maximise benefits and join up action
- **Efficient monitoring system** – activity data and emission estimates from the integrated inventory or other sources were recommended to be used as baseline data and performance indicators for the monitoring and evaluation of relevant clean air measures
- **Coordination of implementation** – expected to continue in the management of Point Sources, for instance by the city government reporting facilities which may require close monitoring by the regional agency

Source: <https://climateactiontransparency.org/wp-content/uploads/2023/03/Air-Pollution-Guide.pdf>



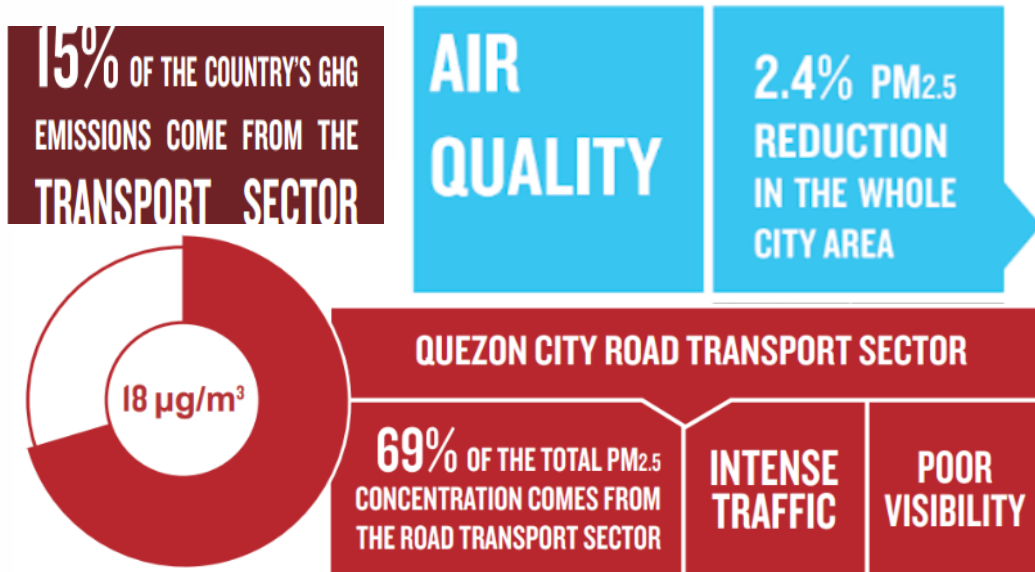
C. Communication and Engagement

- Same sources, same solutions
 - Distinction between AQ and CC not always clear to stakeholders
 - Air pollution is visible, real and immediate
 - Climate can be more intangible, longer term
 - Leverage the benefits of both agendas for ambitious city-wide action with maximum impact
 - Ensure joined-up decision-making and messaging
-
- ✓ Make CC feel more 'real' by linking to immediate AQ issues
 - ✓ Raise profile of AQ by linking to global climate emergency narratives
 - ✓ Avoid confusing stakeholders with multiple messages



Case Study: Anti Smoke Belching Campaign – Metro Manila

- Aim to “build a Liveable, Green, Sustainable and Climate-Resilient City”
- Daily roadside testing of vehicle exhaust opacity levels to verify that PM2.5 limits are respected



Source: <https://www.c40.org/wp-content/uploads/2022/02/Quezon-City-%E2%80%93-Enforcement-of-Vehicle-Emissions-Regulations.pdf>



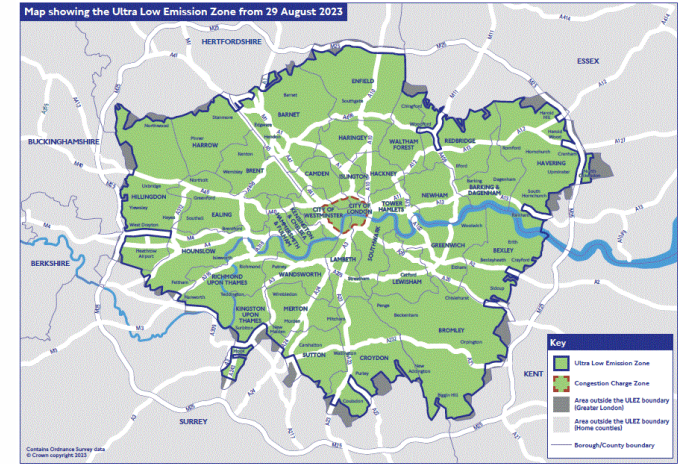
Examples

**Impactful
city AQ-CC
action**



Bold AQ action with climate co-benefits - London ULEZ

- World's first 24-hour Ultra Low Emission Zone (ULEZ)
- Aimed to bring down pollutant concentrations but the resulting change in vehicles has achieved reductions in CO2 emissions
- In the ULEZ area since 2019:
 - 26% reduction in NOx (70% reduction from buses)
 - 19% reduction in PM2.5
 - 4% reduction in CO2
- Implementing policies that achieve ambitious targets equitably needs innovative policy design and engagement
 - Equity issues: but scrappage schemes, good public transport, substantial environmental and health advantages outweigh impacts
 - Communication issues: the relationship between AQ and CC is a challenge - public uncertainty, media / politicians also get it wrong



Medellin's transformational approach to urban transport

- Ambitious climate action plan - carbon neutral 2050, recognises AQ co-benefits
- Significant air quality challenges - private transport
- Very comprehensive AQMP - Takes a long-term view
 - Puts emphasis on stakeholders from civil society
 - Citizen pressure led to public air quality data online
 - Short-term actions to tackle air pollution incidents
- *“Objective... to become the Latin American capital of electric mobility in the country”* - Medellín Mayor
 - Planning to operate 4,000 electric buses by 2025 and 4,850 buses by 2035, as part of the C40 Zero Emission Bus Rapid-deployment Accelerator (ZERBA)
 - Urban transformation approach



Source: <https://www.ccacoalition.org/news/medellins-air-quality-plan-leads-improvements#:~:text=Medell%C3%ADn%20City%20has%20one%20of,air%20in%20Colombia's%20Aburr%C3%A1%20Valley.>

Quezon City's people-focused Bus Augmentation Program

- Through [Ordinance No. SP-3184](#) the City Bus Program was made free forever
 - encouraging public transport
 - using less road space, moving commuters more efficiently
 - reducing GHG emissions
 - improving air quality
 - socioeconomically beneficial
- Included in Quezon City's Enhanced Local Climate Change Action Plan for 2021-2050
 - priority climate change mitigation strategy of ***“Clean and Efficient Local Bus Rapid Transit System and Government-Owned Vehicles Towards Improved Air Quality”***



Source: <https://icleiseas.org/index.php/2023/09/05/how-four-philippine-cities-are-cutting-down-emissions-under-the-cities-race-to-zero/>

Leveraging international finance - USAID Vietnam Urban Energy Security in HCMC & Danang

- Steep increases in energy demand and rising air pollution requires cleaner, more reliable sources of energy
- USAID working closely with the Government of Vietnam to catalyze urban clean energy solutions
- National strategies, policies, and regulations: drafting regulations and standards for rooftop solar, EV charging, capacity building
- Deploying 400 MW renewable energy generation and mobilizing \$600m in new investment for clean energy



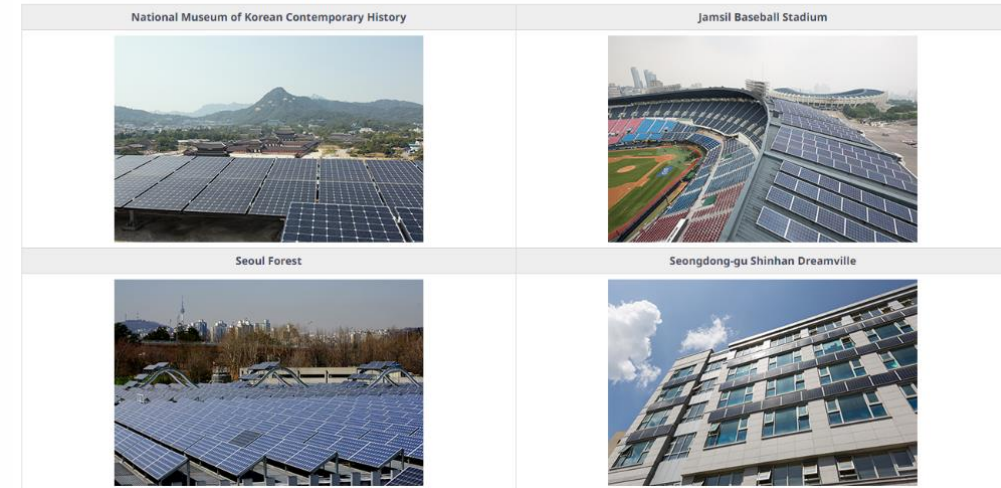
Source: <https://www.usaid.gov/vietnam/fact-sheets/usaid-vietnam-urban-energy-security>



Affordable, accessible, clean energy - Solar City Seoul

- Launched in 2017 to prevent the need to build new coal-fired and nuclear power plants by meeting more of the city's electricity demand with renewable power
- City provides subsidies, low interest loans and runs five Solar PV Support Centres
- In 2018, the solar panels generated 252,989 MWh of electricity, cutting PM2.5 levels by 8.7 tonnes
- Installed 357 MW of solar panels for 285,000 households by 2019
- Seoul Energy Forum for 3,200 citizens meet seven+ times/year to discuss Seoul's energy transition policies

Photos of Seoul's Solar Power Project



Source: <https://english.seoul.go.kr/seoul-awarded-c40-cities-award-for-solar-city-seoul/>



Other big hitting actions for AQ-CC benefits

Residential

- **Replacing coal** - switching fuels/to renewables, and/or reducing demand
- Replacing generators – renewable / grid connections
- Improvements in **fuel quality**
- **Improved stoves:**
 - standards for emissions and energy efficiency
 - upgrades through funded replacement programmes
 - renewable stoves
 - **replacing biomass**

Industry

- **Improved fuel quality:** all commercially available, typically uptake is driven by regulatory controls
- **Coal replacement** to other fuels
- **End-of-pipe** control technologies
- **Tighter standards** applied in areas of high population and poor air quality
- Innovative mechanisms such as **pollution charges**, elimination subsidies, **planning policy**

Transport

- **Restricted access** to parts of the city for certain vehicle types
- **Active travel** – avoiding vehicles
- Incentives for **cleaner vehicle** purchase (plus restrictions, incentives e.g. parking, and infrastructure)
- **Green / intelligent freight**
- **Consolidation & enhanced public transport** along the most polluted transport corridors, ideally with **zero tailpipe emissions**



Summary of key opportunities

- ✓ Long-term, transformational, economy-wide 'climate thinking' can support or be integrated into air pollution decision-making to **maximize co-benefits and minimize trade-offs, and ensure 'holistic sustainable futures'**
- ✓ The immediacy of air pollution – its impacts and the actions needed – can support **faster uptake and more impactful climate actions** with longer-term more intangible benefits
- ✓ Important to consider **both AQ and CC impacts and benefits (and others!) together** in decision-making and action planning
- ✓ **Combining and coordinating these two areas** can be leveraged to bring about more impactful action (important to quantify action impacts)
- ✓ There are **opportunities to better "mainstream" AQ and CC processes** for efficiencies across action planning, data, and engagement
- ✓ Co-management brings opportunities to **access more finance and support**

