Air Pollution in Bhutanese Cities: an Airsheds Approach

Strengthening Regional Cooperation To Tackle Air Pollution Challenges In Asia And The Pacific

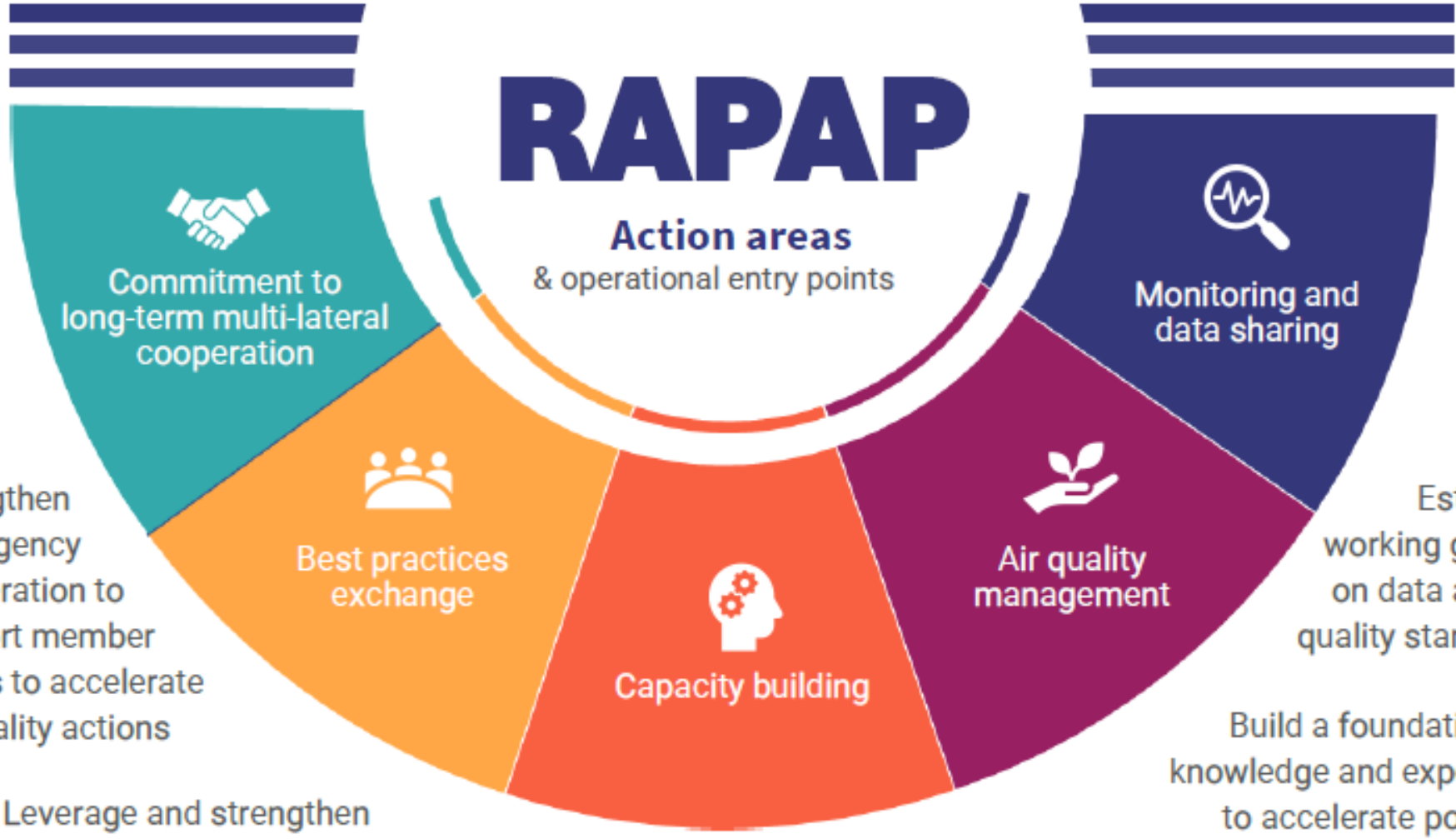


UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Image credit: V.T. Polywo

RAPAP

Action areas
& operational entry points



Strengthen interagency cooperation to support member States to accelerate air quality actions

Leverage and strengthen connections among existing subregional initiatives to enhance exchange of knowledge and best practices and identify key capacity gaps

Mobilize support from member States for pilot projects/initiatives and facilitate bilateral and multilateral cooperation

Link to global initiatives and networks such as the Climate and Clean Air Coalition (CCAC)

Build a foundation of knowledge and expertise to accelerate policies and practices

Establish working groups on data and air quality standards

Project Context

The Asia-Pacific region is **rapidly urbanising** and will become mostly urban in the next decades.

This rapid urban expansion increases:

- Increases infrastructure development and energy consumption
- Raises demands for fossil fuel in the transport sector
- Adds to household pollution from cooking and heating/cooling
- Gives room for improper waste management

All of which unavoidably contribute to the region's worsening air pollution….

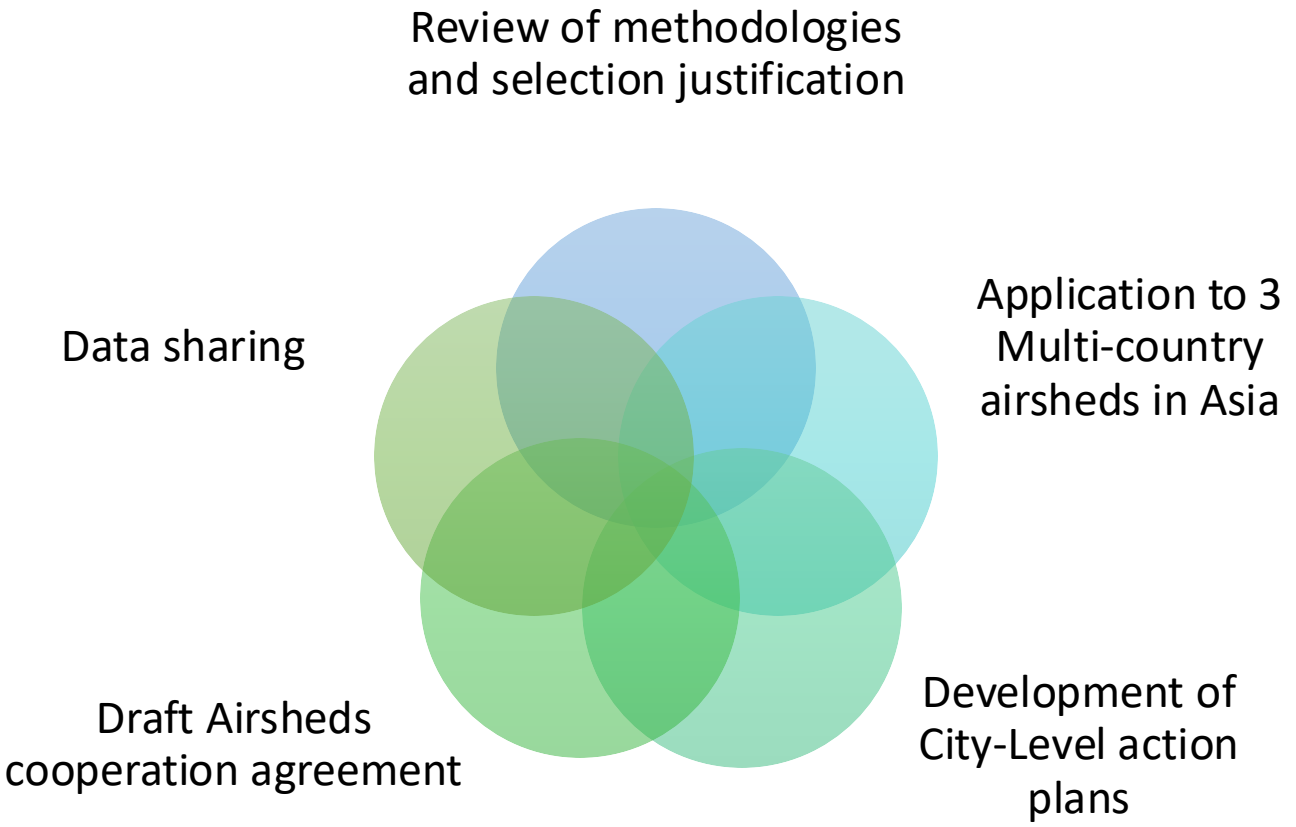


Project Goals

The project will focus on the improvement air quality in multi-country airsheds.

The engagement of stakeholders at all levels of jurisdiction will enhance regional cooperation and strengthen collaboration among cities/subnational authorities and national governments.

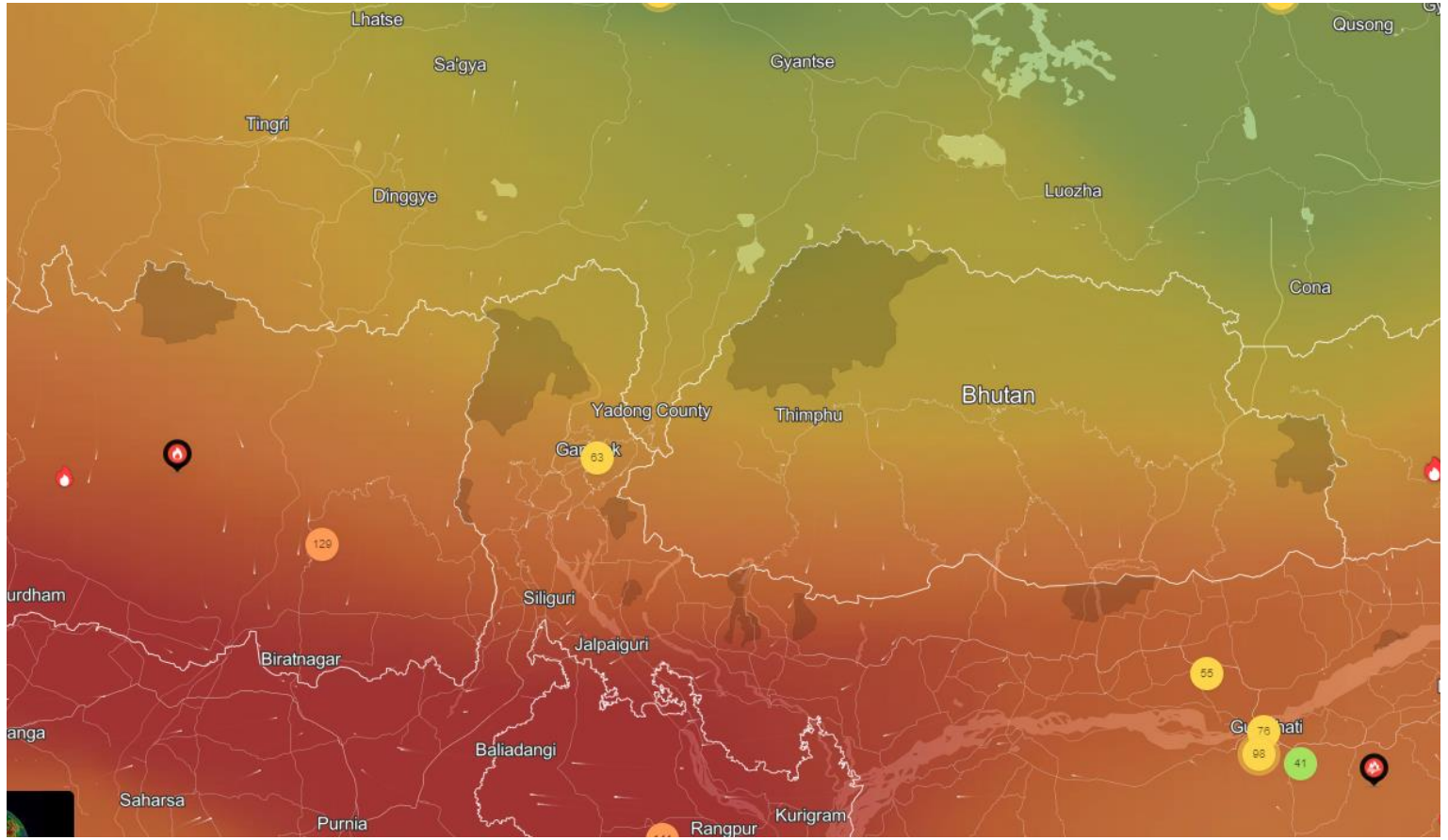
Project Activities 2024-2026



Airsheds Definition:

A geographic area affected by the same air mass defined by topography, meteorology and/or climate.

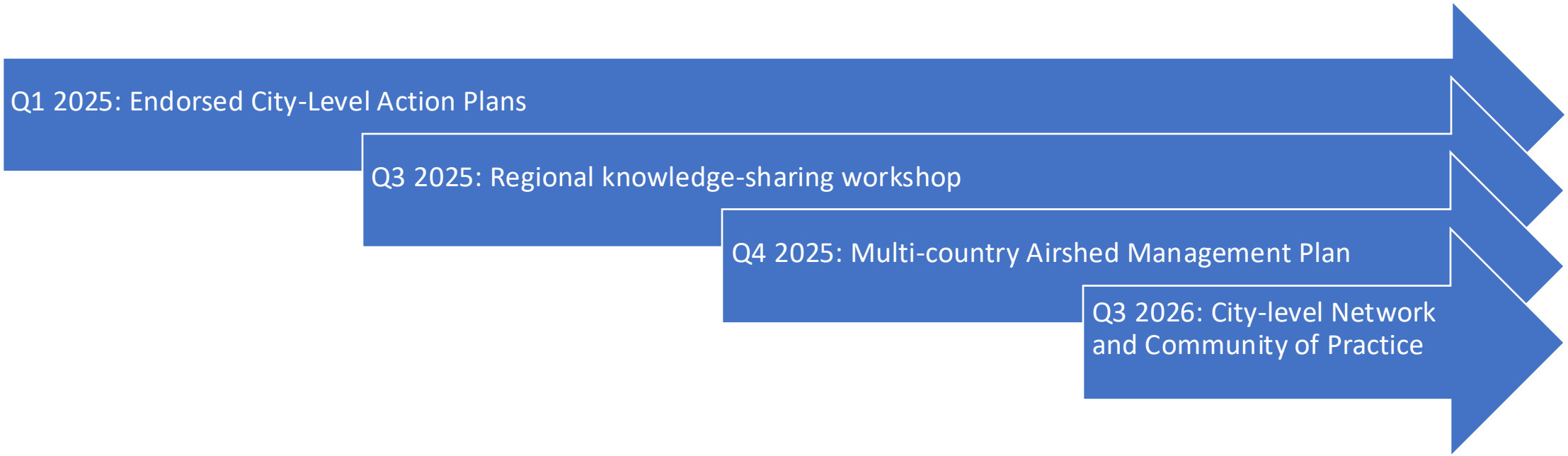
Air quality within the airshed will depend on pollution sources within it, but not outside it.



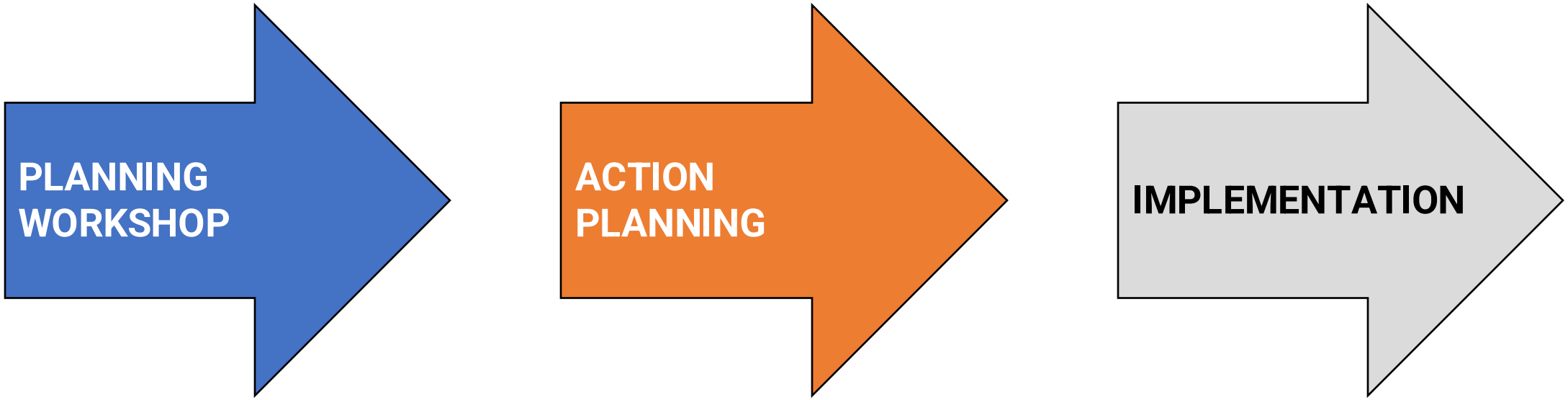
Project Timeline: Support Science-Based Policy



Project Timeline: Establish Networks



Upcoming Activities: Pilot Cities



An Expert Group Meeting to review air pollution trends and analysis in the region to **identify goals** of the Action Plan

Stakeholders in pilot cities develop action plans to **effectively improve air** quality for resilient and sustainable urbanization

Stakeholders in pilot cities to launch Action Plan, and **measure and monitor** the project outcomes in order to fine-tune the approach

City Workshops

What Will Happen At This Event?



The purpose of this planning workshop is to convene key urban air pollution stakeholders to **reach a joint agreement** on initiatives and actions to air pollution for their city.

The workshop objectives are to:

- **Validate** baseline data and scientific evidence
- **Define** key themes and interventions
- **Identify** and prioritise actions and instruments

The expected workshop outcomes:

- **Understanding** of sources, pathways and possible hotspots
- **Enhanced knowledge** of how to mitigate air pollution
- Increased **capacity to act on effective policies** and activities that reduce emissions, concentrations and exposure
- A better understanding of the **city's role** in national/regional **advocacy efforts**

City Action Planning

What Is A City Action Plan?

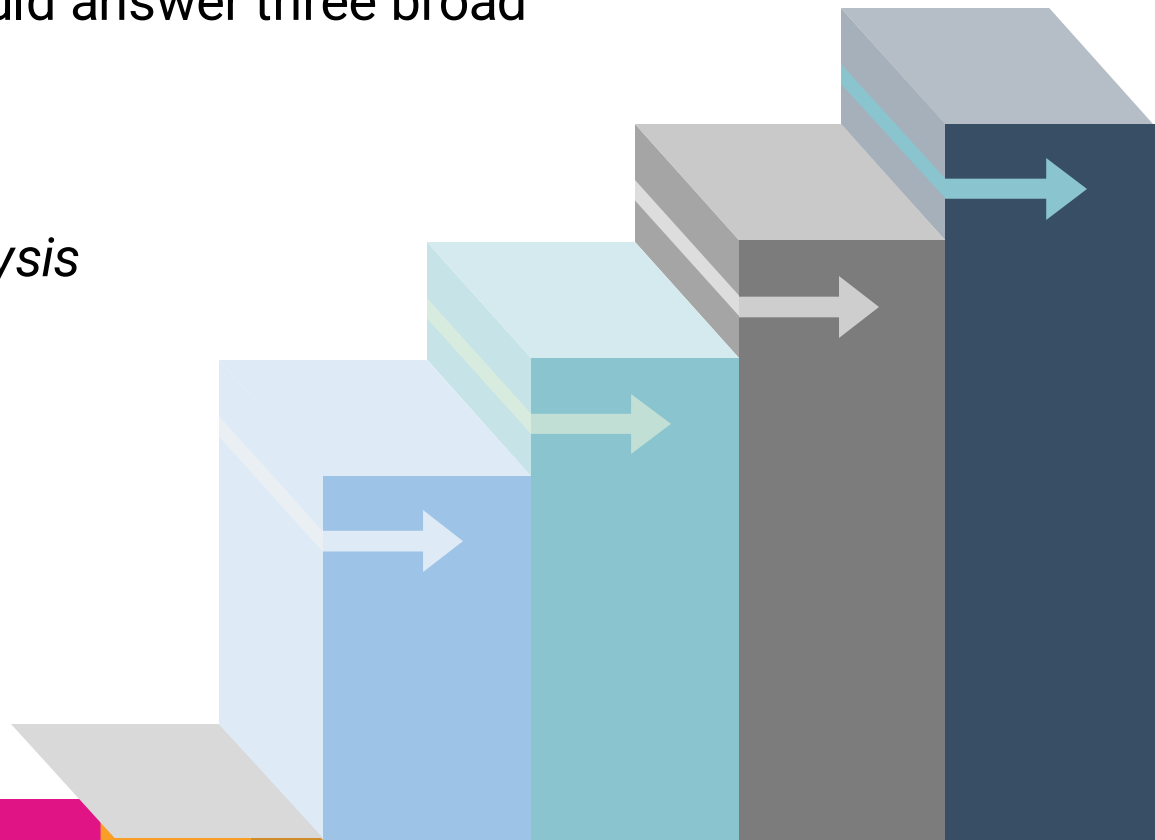
A city action plan is a policy instrument that **establishes specific goals** and details what steps must be taken in order to achieve each goal.

The process of achieving a robust City Action Plan should answer three broad questions:

1. What is the current situation?
   The science/evidence through a baseline and gap analysis

2. What can we do about it?
   Intervention Planning

3. How do we implement it?
   Action





Science-based Measures

What Types Of Policy?

A 2019 UNEP/CCAC report identified 25 proven and cost-effective measures - that if implemented, could give one billion people living in Asia access to clean air by 2030.

The policy recommendations represent the framework of what our project is trying achieve throughout the region- identifying the most appropriate solutions for cities based on their context.

Bhutan Air Pollution Action



Tackling Household Air Pollution

1

Promote Clean Cooking Solutions

Encourage the use of clean cooking stoves and fuels to reduce indoor air pollution, which is a significant health hazard.

2

Enhance Ventilation

Improve ventilation in homes to reduce the concentration of indoor pollutants. pollutants.

3

Awareness Campaigns

Conduct awareness campaigns about the health impacts of indoor air pollution and pollution and the benefits of clean cooking and heating technologies.

Reducing Industrial Air Pollution

Pollution Control Equipment

Mandate the installation and and proper operation of pollution control equipment equipment such as electrostatic electrostatic precipitators in industries like cement plants. plants.

Emission Standards

Enforce strict emission standards for industries and monitor compliance regularly.

Industrial Zoning

Implement zoning regulations to regulations to keep industrial industrial activities away from from residential areas to minimize exposure to harmful harmful pollutants.

Addressing Transportation Air Pollution

1

Vehicle Emission Standards

Enforce stricter vehicle emission standards and regularly inspect vehicles for compliance.

2

Promote Electric Electric Vehicles Vehicles

Encourage the use of of electric vehicles through incentives and develop the necessary infrastructure for EVs. EVs.

3

Public Transportation

Improve and expand expand public transportation systems to reduce the number of private vehicles on the road.

4

Traffic Management

Implement intelligent intelligent traffic management systems systems to reduce congestion and associated emissions. emissions.

Cross-Sectoral Actions for Air Quality Improvement

1

Air Quality Monitoring

Establish a comprehensive air quality monitoring network to identify pollution hotspots and track progress.

2

Legislation and Policy Policy

Strengthen environmental environmental legislation legislation and policies related to air quality management.

3

International Collaboration

Engage in regional cooperation to address transboundary air pollution issues.

4

Research and Development

Invest in research to better understand the the sources and impacts of air pollution and to and to develop innovative solutions.

5

Public Engagement

Involve communities in air quality improvement initiatives and decision-making making processes.

Climate Change Mitigation Efforts



Carbon Neutrality Commitment

Continue to uphold the commitment to remain carbon neutral or negative by implementing measures that also reduce air pollutants.



Renewable Energy

Invest in renewable energy sources to reduce reliance reliance on fossil fuels and decrease greenhouse gas greenhouse gas emissions.

Harmonize With Previous Work

Key Organizations Addressing Air Pollution in Bhutan

- National Environment Commission (NEC)
  - Key government agency responsible for environmental issues, including air pollution
  - Formulates industry-specific air emission standards

- United Nations Development Programme (UNDP)
  - Supporting Bhutan's transition to electric vehicles to reduce fossil fuel emissions
  - Implementing the Bhutan Sustainable Low-emission Urban Transport Systems project

- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
  - Collaborated with Bhutan's Ministry of Economic Affairs to develop an SDG7 Roadmap
  - Provides policy recommendations for decarbonizing Bhutan's energy sector

Duke University's Air Quality Monitoring Program

- Creating air quality sensor networks and research programs in South Asia, including Bhutan

- Partnering with local governmental and private sector organizations

- Aims to improve air quality monitoring and public awareness

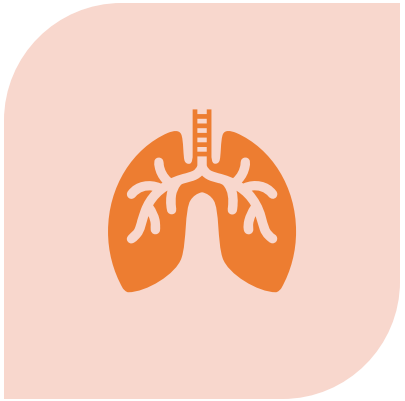
World Bank's Assistance



- POLLUTION MANAGEMENT AND ENVIRONMENTAL HEALTH (PMEH) PROGRAM



- PROVIDING TECHNICAL ASSISTANCE TO BHUTAN AND OTHER COUNTRIES



- ADDRESSING AIR POLLUTION AND ITS HEALTH IMPACTS

Coordination Points:

- Duke University. (2023). Building Air Quality Infrastructure in South Asia. https://pratt.duke.edu/news/building-air-quality-infrastructure-south-asia/
- United Nations Development Programme. (n.d.). Bhutan Sustainable Low-emission Urban Transport Systems. https://www.undp.org/bhutan/projects/bhutan-sustainable-low-emission-urban-transport-systems United Nations Economic and Social Commission for Asia and the Pacific. (2022).
- Bhutan SDG7 Roadmap. https://www.unescap.org/kp/2022/bhutan-sdg7-roadmap World Bank. (n.d.).
- Pollution Management and Environmental Health (PMEH) Program. https://www.worldbank.org/en/topic/environment/brief/pollution-management-and-environmental-health-program

What does this mean for Bhutan?



Implementation Support (Oct 2024-Dec 2026)

~30,000k USD for direct support to beneficiary cities

- Enhancing waste disposal systems
- Biogas generators
- Protecting Vulnerable Populations
- Coordinating with Neighbors



Next Steps

- Prepare Draft Studies
- Coordinate with Cities and local stakeholders
- Virtual Project Inception Meeting (End of May)
- Letter of Agreement and Transfer of Funds

QUESTION AND ANSWER

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

