Cobenefits of Climate Change and Air Pollution in Asia

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Content

1. Relevance of the co-benefit principle for Asia
2. Clean Air Initiative for Asian Cities (CAI-Asia) and overview of cobenefits-related projects
3. Moving Cobenefits Approach in Asia: Opportunities for European Assistance

Energy Context: Asia vs Europe

- Energy Demand: Asia is facing rapid increase in demand for energy and establishment of new production capacity while Europe is a far more mature market
- Energy Efficiency: In Asia, energy efficiency in plant level is generally low and overall country energy efficiency profile is generally not improving. EU countries, on the other are exhibiting improved energy efficiency profiles.
- Fuels and Cleaner Technologies: While EU countries are abandoning coal and shifting to cleaner fuels, Asia is increasing its dependence on coal using often traditional dirty coal technologies.
- Renewable Energy: Despite high potential for renewables, its share in Asia's energy mix is (still) low. EU has high(er) share of renewables.
- *There is a large cobenefits potential in the energy sector in Asia – such as for following measures: improving energy efficiency, shift to cleaner fuels and renewable energy, adoption of cleaner technologies, etc.*

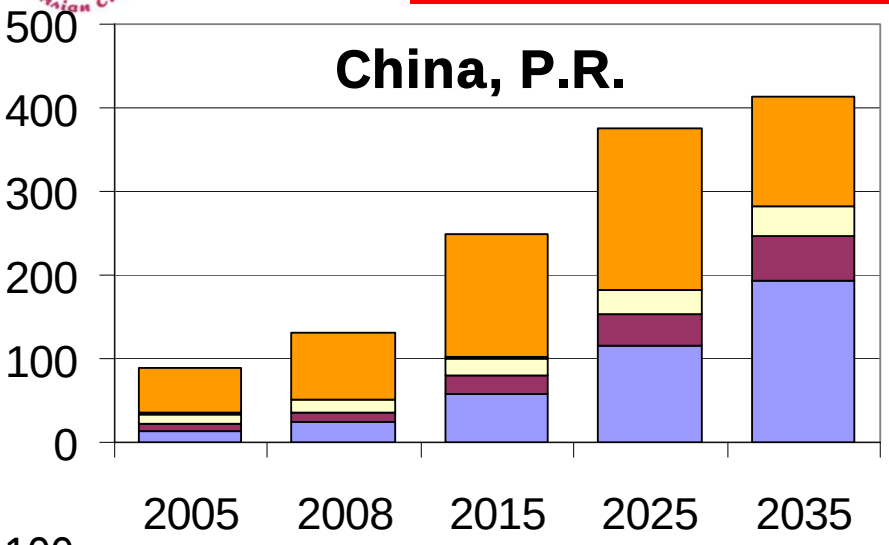
Transport Context: Asia vs Europe

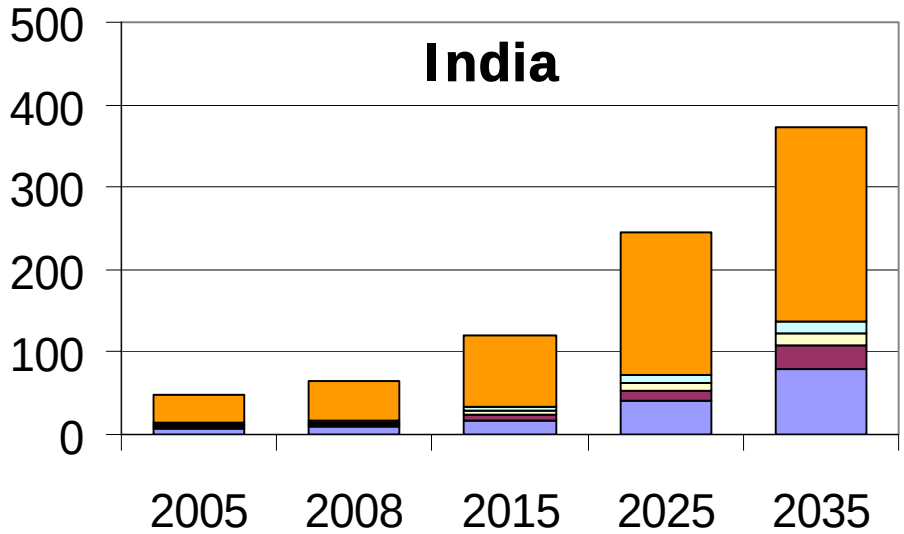
- Transport Demand: In Asia inefficient public transport combined with growing prosperity drives' desire for personal mobility – cheaper, more comfortable, faster. Both 4 wheeled vehicles and 2-3 wheelers.
- Inspection and Maintenance: The strong inspection and maintenance culture in Europe is not seen in Asia where there are large fleets of poorly maintained ageing vehicle population. This affects both emissions and fuel efficiency
- Sustainable Urban Transport: Europe: efficient public transport systems in place with integrated non-motorized transport (NMT) facilities, and high percentage of private car use. Asia: poor public transport, high percentage of NMT, and low number of private cars. Asia is evolving market, in Europe people have made their choices years ago.

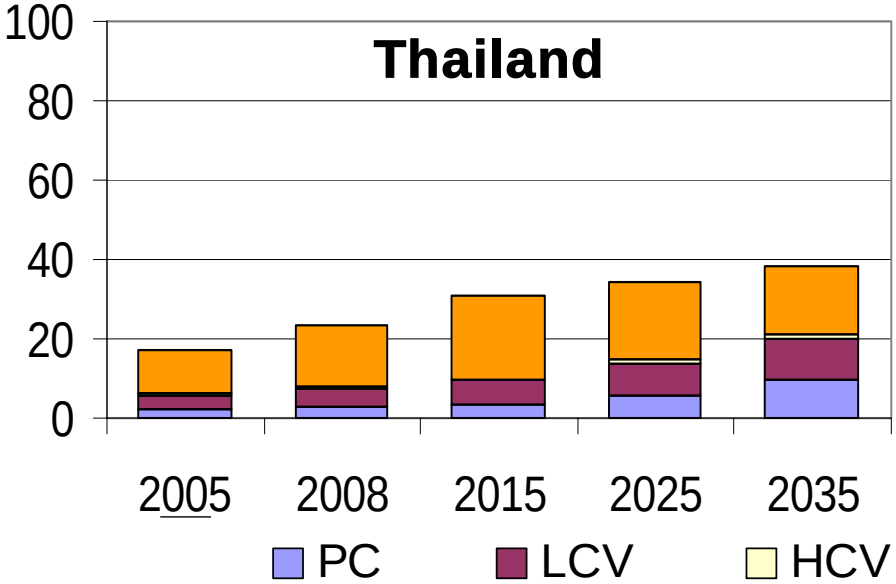
- *There is a wide menu of measures where Asia can reap large cobenefits not only in terms of reduction of emissions of air pollutants and GHGs but also issues of road safety, traffic congestion and economic development.*

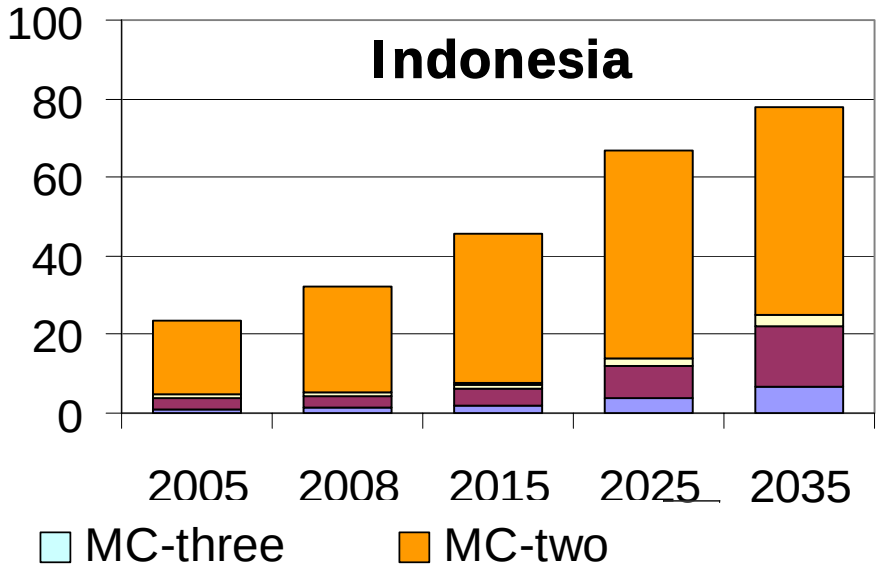
Vehicle Growth Forecast in Asian Countries

(in Millions of Vehicles)



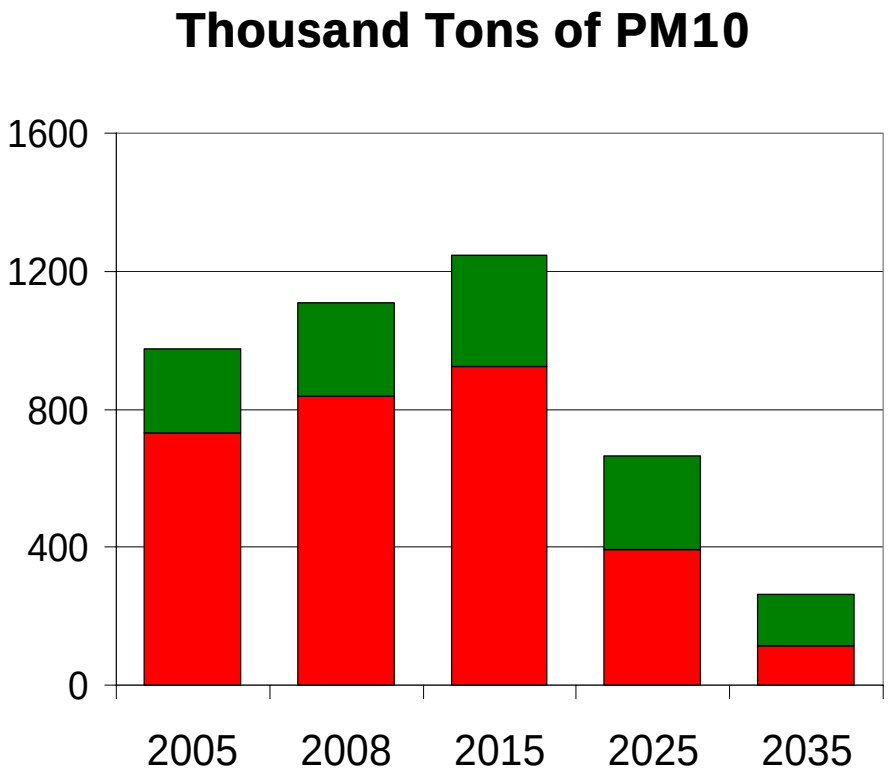


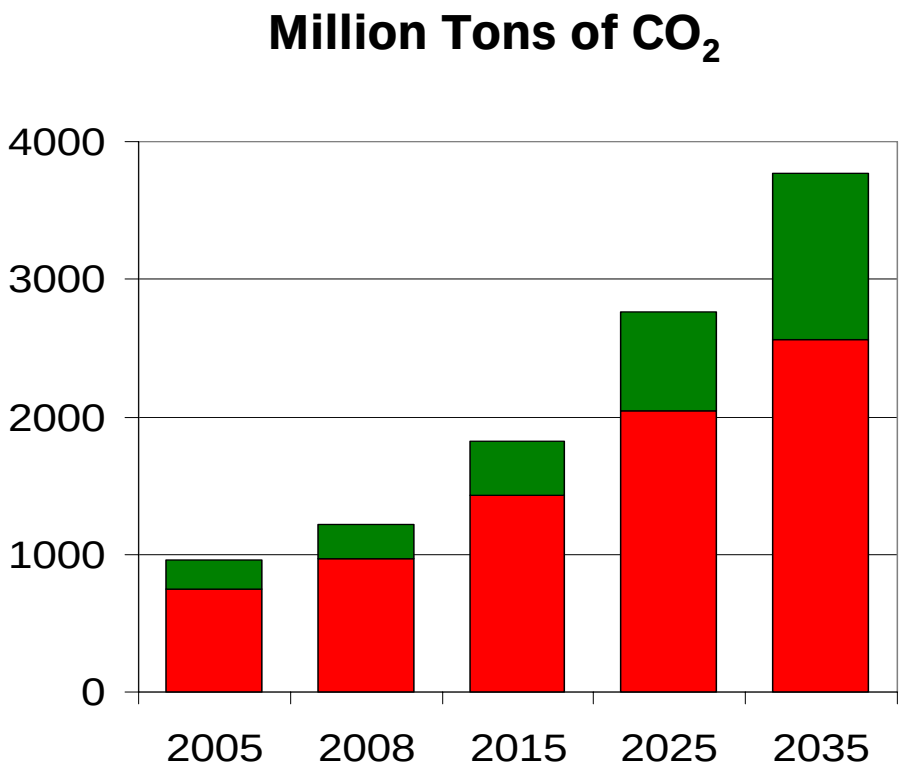




Note: Vehicle Population Projection from Segment Y Ltd

PM10 and CO_2 Forecast from transport for China and India





China, P.R.

India

Source: ADB, 2006

* **Projected PM10 and CO_2 are based on current plans for emission (Euro) standards and fuel efficiency targets in China and India.**

* **Intervention is required to also bring down CO_2 emissions from transport, this will require changes in transport mix.**

Cobenefits Approach tools and resources: Asia vs Europe

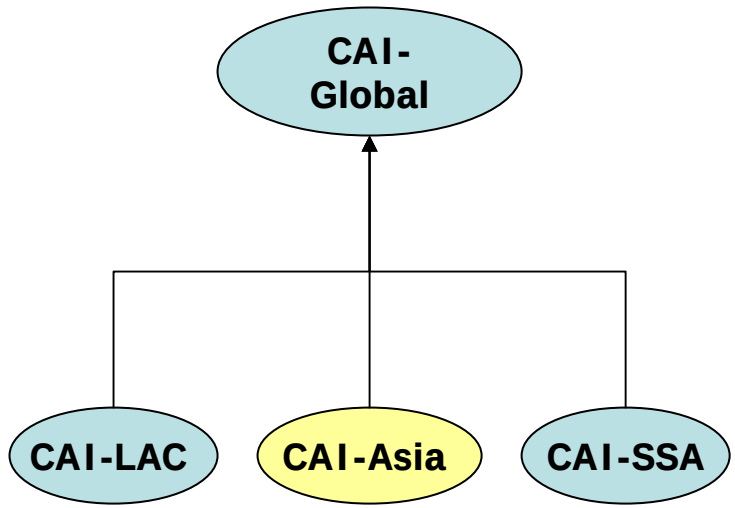
- Cobenefits approach still in conceptual/ theoretical stage in Asia while in Europe cobenefits approach for AQM and CC studied more in-depth.
- There is also a lack of available tools and methodologies to pursue cobenefits approach in Asia: Emissions inventory capacity, which is a basic requirement in measuring cobenefits of AQ and CC, is generally weak in Asia, there is absence of regional harmonized methodologies for data and inventories.
- While level of public and policy-maker understanding and awareness of climate change and air pollution in Asia is low, public demand for “cleaner goods and services” is common in Europe.
- Low priority for and poor implementation and enforcement of environment agenda in Asia is compounded with problems in lack of resources and capacity (technical, financial, etc) as well as absence of strong regional economic cooperation and governance structure.
- *Cobenefits approach is more mature in Europe while it is in the infancy stage in Asia.*

CAI-Asia

- CAI-Asia was established in 2001 as a regional initiative to help establish and strengthen the regional movement for urban air quality management (AQM) improvement in Asia.
- CAI-Asia is widely acknowledged for its role as regional convener and information exchange facilitator on the subject of urban air quality in Asia.

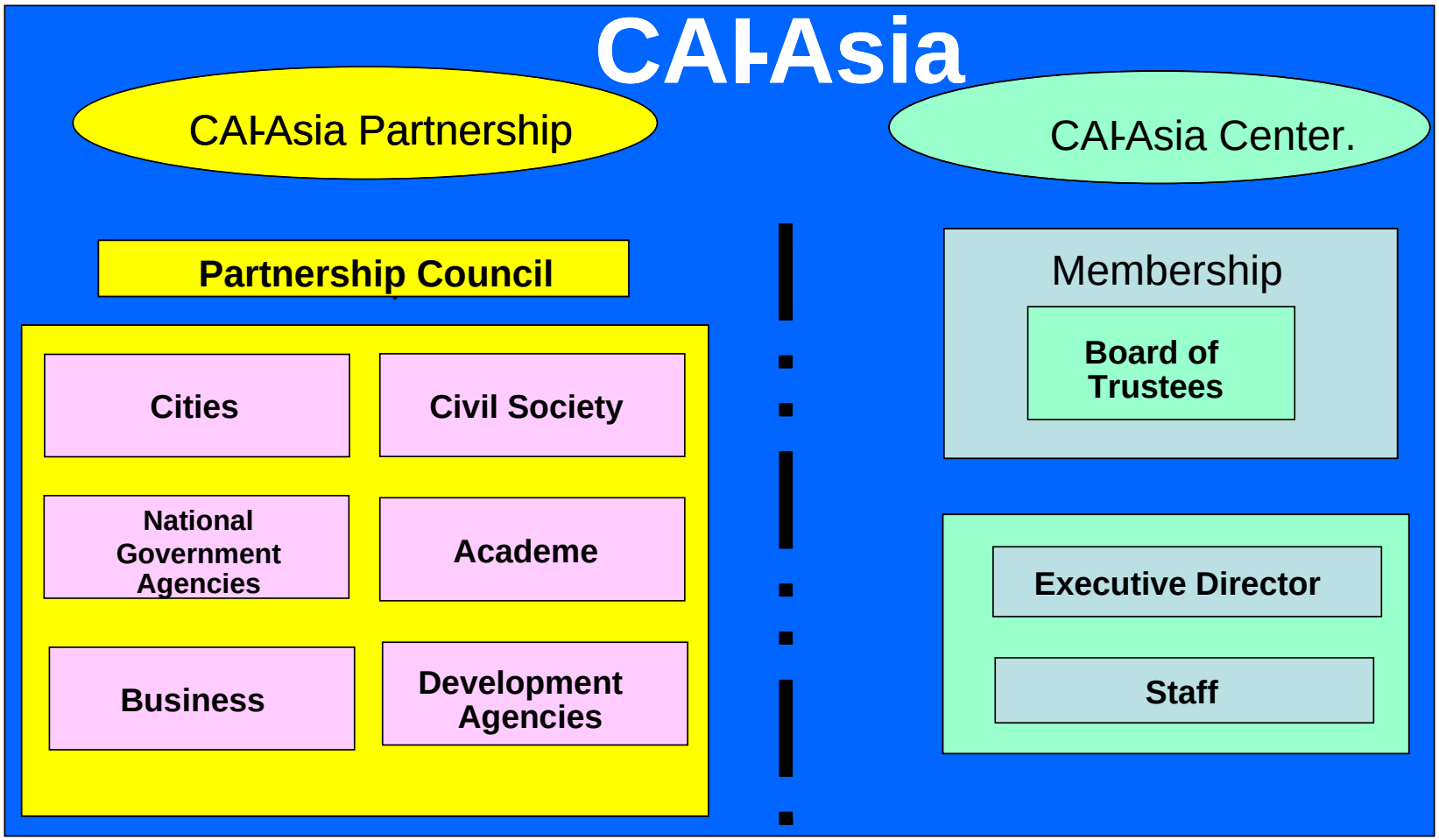
CAI-Asia Components:

- Knowledge Management
- Capacity building
- Policy and regulatory frameworks
- Integrated air quality management policies and strategies
- Piloting projects to encourage innovation

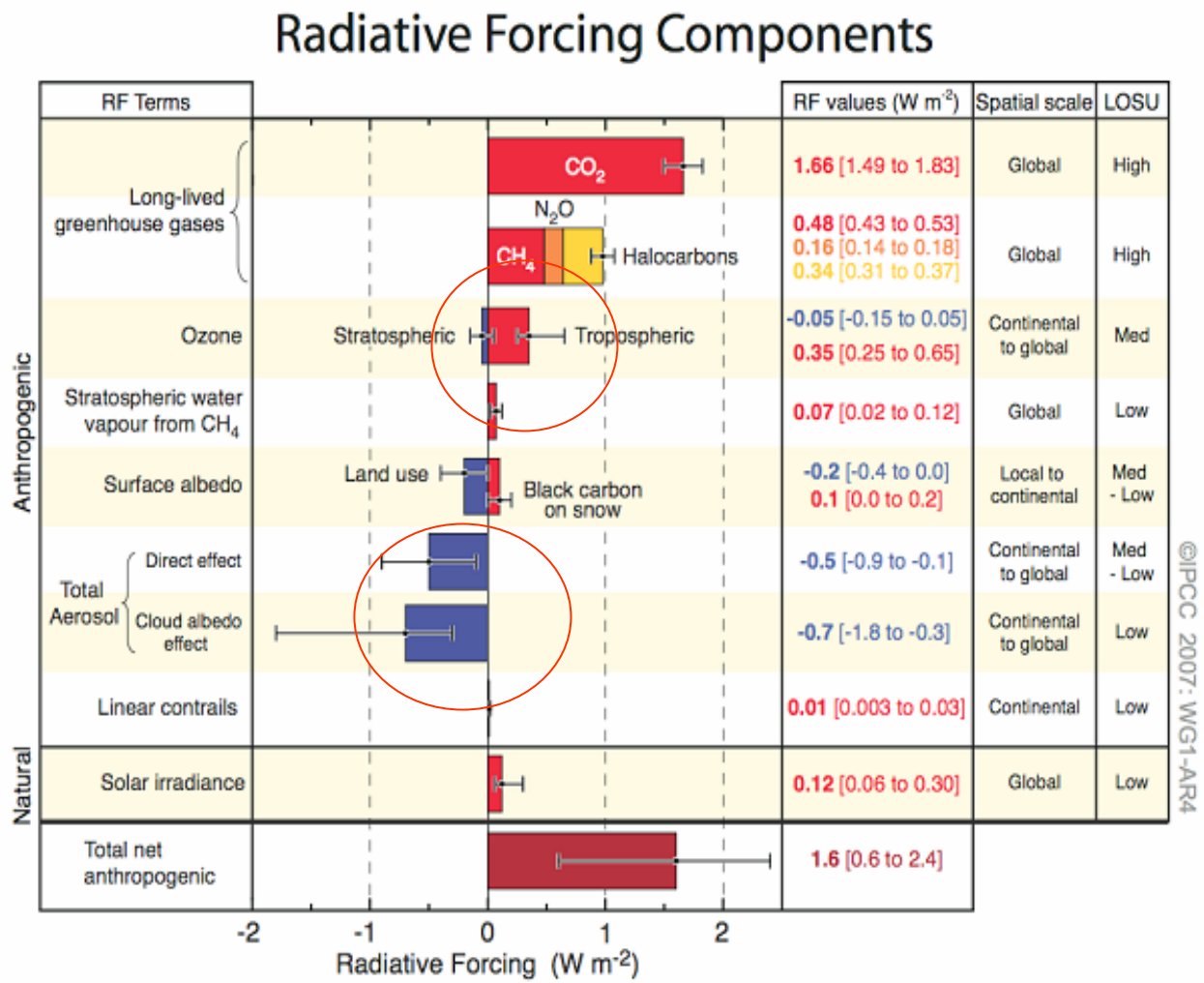


New CAI-Asia Structure

CAI-Asia network is evolving from a project into an institution.



CAI-Asia interest in Climate Change



Source: IPCC Working Group I Contribution to the Fourth Assessment Report
Climate Change 2007: The Physical Science Basis Summary for Policy Makers

- The IPCC Working Group I Fourth Assessment Report has recognized that dust, ozone, black C, and other aerosols have impact on climate as expressed in radiative forcing units
- Aerosols (Sulphate, Organic C, nitrate and dust) produce a cooling effect while tropospheric ozone (a product of NOx, CO and HC reaction) produce a warming effect
- The level of scientific understanding of air pollution impact on climate has improved from Third Assessment Report but still remain the dominant uncertainty in radiative forcing.

Key CAI-Asia projects on Cobenefits of Climate Change and Air Pollution

- Strengthening adaptive capacities to the effects of climate change and regional air pollution on crops and water availability *(under development)*
- Climate Change, Air Pollution and Energy in Asia (CCAPEA) *(under development)*
- Cobenefits of Climate Change Mitigation: Coordinator in Asia *(ongoing)*
- Energy Efficiency and Climate Change Considerations for On-Road Transport in Asia *(completed)*
- Governmental Meeting Process on Urban Air Quality in Asia (*ongoing*)

Strengthening Adaptive Capacities to Effects of CC and regional air pollution

- The project will be conducted as a partnership between: Murdoch University (Australia), Clean Air Initiative for Asian Cities, and Stockholm Environment Institute (SEI) in collaboration with top research institutions in the GMS .
- First time that cobenefits approach (of CC and air pollution) will be applied in agriculture and water sectors in Asia.

The project will have following major components:

- Regional air pollution and climate change
  - Estimation of emissions, modeling and monitoring ground level O_3 and acid deposition.
  - Modeling of regional climate change scenarios.
- Coordinated assessment of physical, social and economic impacts of regional air pollution and climate-induced change on crops, forests, water resources and water availability using agreed harmonized protocols.
- Development and assessment of options for mitigation and adaptation to impacts on crops, forests and water availability.
- Policy assessments and communication of policy-relevant options to decision-makers.

Climate Change, Air Pollution and Energy in Asia

- The proposed project will be a collaboration between CAI-Asia, Norwegian Institute for Air Research (NILU), Norwegian Pollution Control Authority (SFT), US Environmental Protection Agency (USEPA) and Air and Waste Management Association (AWMA) and will be funded through the Norwegian Agency for Development Cooperation (NORAD).
- The project aims to assist Asian countries and cities address air pollution, energy and climate change problems in an integrated manner.
- One of the major outputs of the project will be Regional Strategic Framework that will guide countries and build capacities in managing emissions (both air pollutants and GHGs) from stationary sources (energy and industries) which is currently lacking attention in Asia.
- Although program is regional in nature, some key activities of the project will be focused in China and India. Project will also assist Viet Nam and Indonesia draft their Comprehensive Clean Air Acts.
- Main components of the project will be knowledge management, capacity building and networking, policy dialogues, and implementing pilot case studies.

Cobenefits of Climate Change Mitigation: Coordinator in Asia (Project Partners)

United States Environmental Protection Agency (USEPA) – provided funds for study

- Through its Integrated Environmental Strategies (IES) program, USEPA has been working with developing countries to build support for integrated planning to address both global greenhouse gas emissions and local environmental concerns.
- IES program covered eight countries, four of which are in Asia (China, Philippines, South Korea and India.

Manila Observatory – main implementing institution of study

- A private non-stock, non-profit, scientific research institution in the Philippines.
- Manila Observatory was also the implementing agency of USEPA's IES program for the Philippines

Clean Air Initiative for Asian Cities – project implementation partner

- CAI-Asia is regional convenor of urban air quality management stakeholders in Asia.
- CAI-Asia is one of the more active promoters of the cobenefits approach of climate change mitigation and air quality management in Asia.

Cobenefits of Climate Change Mitigation: Coordinator in Asia

GOAL

To consolidate and disseminate resources pertaining to co-benefits for the use of practitioners, researchers, scientists, policy-makers in order to promote this approach to action-planning and decision-making.

OUTPUTS

- Monitor and synthesize current research, discussions, and other related initiative for documentation and online dissemination
- Conduct an online regional survey among key institutions involved in co-benefits work to identify possible avenues of cooperation
- Develop a concept for future cobenefits programs in Asia detailing avenues for cooperation of collaboration among organizations with interest in cobenefits in Asia.

Institutional Survey on Cobenefits Activities

COMPONENTS OF COBENEFITS ACTIVITY & MODE OF IMPLEMENTATION

- ❑ Awareness Raising/Advocacy
- ❑ Scientific Research
- ❑ Capacity Building
- ❑ Technical/Equipment Support
- ❑ Policy/Strategies Development
- ❑ Models & Measurement Tool Development

WITH WHICH AREAS/TYPES OF BENEFITS DO YOUR PROGRAMS/PROJECTS LINK CLIMATE CHANGE MITIGATION?

- ❑ Energy (e.g. Energy Efficiency, Diversity of Energy Supply, etc)
- ❑ Transport (e.g. Sustainable Urban Transport)
- ❑ Environment (e.g. Air Quality Management, Public Health, Agriculture and Crops, Biodiversity, etc.)
- ❑ Economics

FUTURE SCENARIO OF CLIMATE CHANGE CO-BENEFITS IN ASIA

- ❑ **Widespread, multi-sectoral and concrete application** (i.e. co-benefits of climate change mitigation being the guiding/institutionally accepted principle in policy formulation, budget allocation, development planning, etc)
- ❑ **Implementation in some sectors but still at the level of academic discussion in other sectors**
- ❑ **Still at the level of academic discussion, conceptual clarification and general policy recommendations**

PLEASE FILL OUT THE SURVEY!

- Collate and disseminate cobenefits-relevant information in Asia.
- Analysis of institutional survey (output 2) to identify cobenefits goals and future plans of participating organizations.
- Identify Asia-relevant cobenefits objectives and prioritize activities.
- Design cobenefits program for Asia and coordinate this with other interested organizations to avoid duplication of efforts, to maximize capacity building and optimize resource mobilization activities.

Moving Cobenefits Approach in Asia: Opportunities for European Assistance

- Although large potential or opportunity for application of cobenefits exists in Asia especially in the Energy and Transport Sectors, Asia is still not equipped to implement cobenefits approach.
- There is a growing discussion and interest on Cobenefits approach in Asia. CAI-Asia is one of the handful of organizations actively promoting cobenefits in Asia.
- Assistance from Europe is required to bridge the gap in capacity and lack of resources, specifically in the following:
  - effective awareness raising on climate change, air pollution issues and linkages;
  - development of methodology for measuring policy-related GHG and associated emission reductions in energy and transport sectors;
  - transferring knowledge and capacity for clean technologies in both energy and transport sectors;
  - piloting or demonstrating case studies applying cobenefits in Asia; and
  - life cycle analysis of specific fuels (e.g. biofuels) to determine, impacts, constraints and costs.

CAI-Asia

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