

# Co-benefits: Linking low carbon transport to sustainable development



**Bert Fabian**

**Transport Program Manager**

Transport and Climate Change

Amari Watergate Hotel, Bangkok, Thailand

25 September 2009



# Outline

- Co-benefits definition
- Co-benefits examples
- Support for integrating co-benefits in climate
- Challenges to mainstream co-benefits approach
- Recommendations to mainstream co-benefits approach

# Co-benefits: 2 definitions

Co-benefits from the **global climate change perspective**: additional benefits beyond GHG reductions resulting from climate change mitigation measures

- Reduced air pollution
- Associated health benefits
- Improved energy security through reduced energy costs and dependency on oil imports
- Increased access to energy
- reduced traffic congestion

Co-benefits from the **Asian regional/local perspective**: additional GHG reductions resulting from measures aimed to address

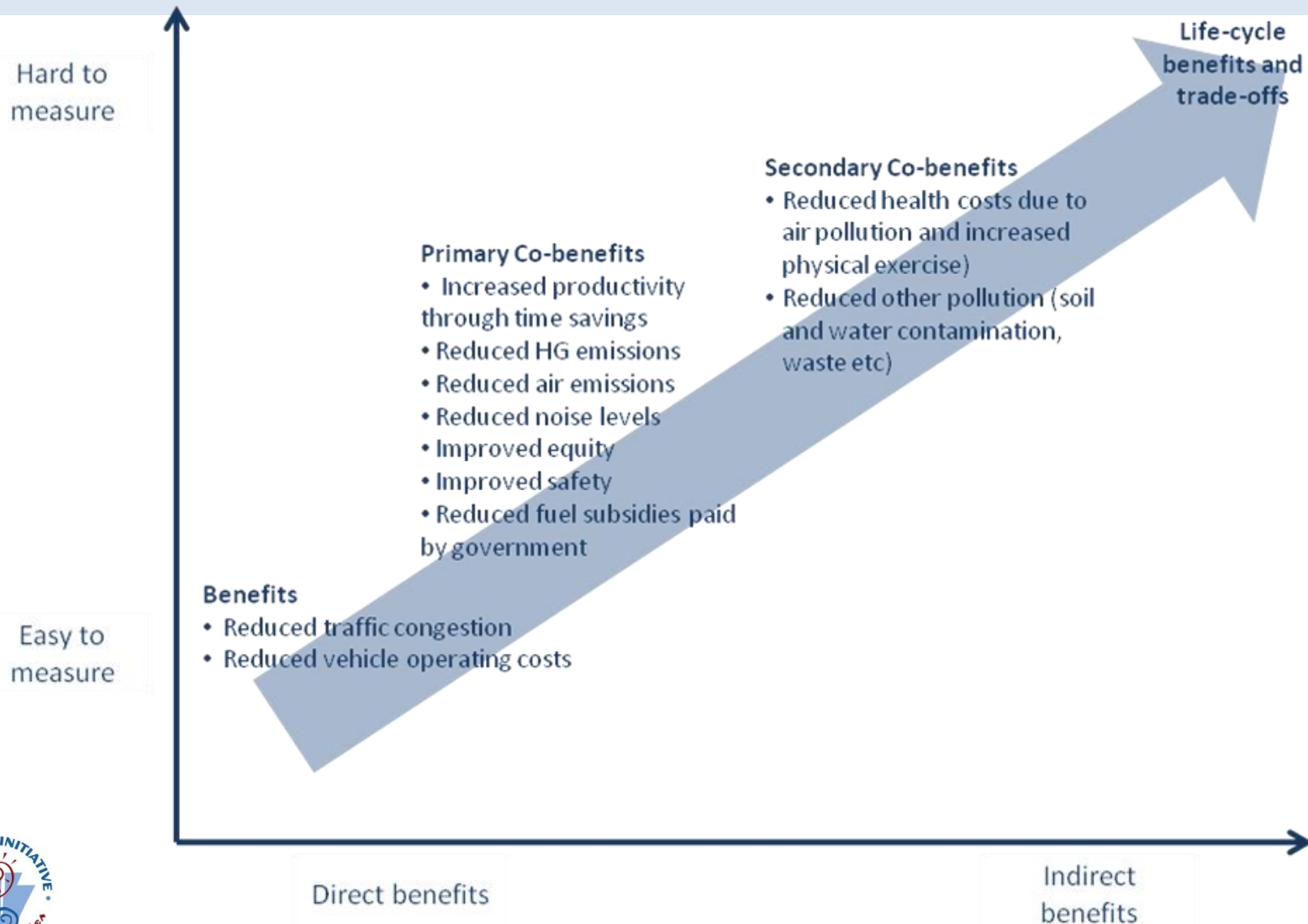
- Development issues, such as air pollution and associated health
- Problems, lack of energy access and security, and other socio-economic problems

# Co-benefits: aim and approach

- **Aim:**
  - Maximize the intended impacts of a policy or intervention at reduced overall costs to society through integration of multiple objectives in policies and projects
  - Substantially contribute to sustainable development goals
- **Co-benefits approach:**
  - Intentionally internalizes co-benefits at the conception of a policy or project to maximize co-benefits
  - Takes into account measures with short term benefits and long term GHG reductions and other benefits.
  - Considers co-benefits and trade-offs

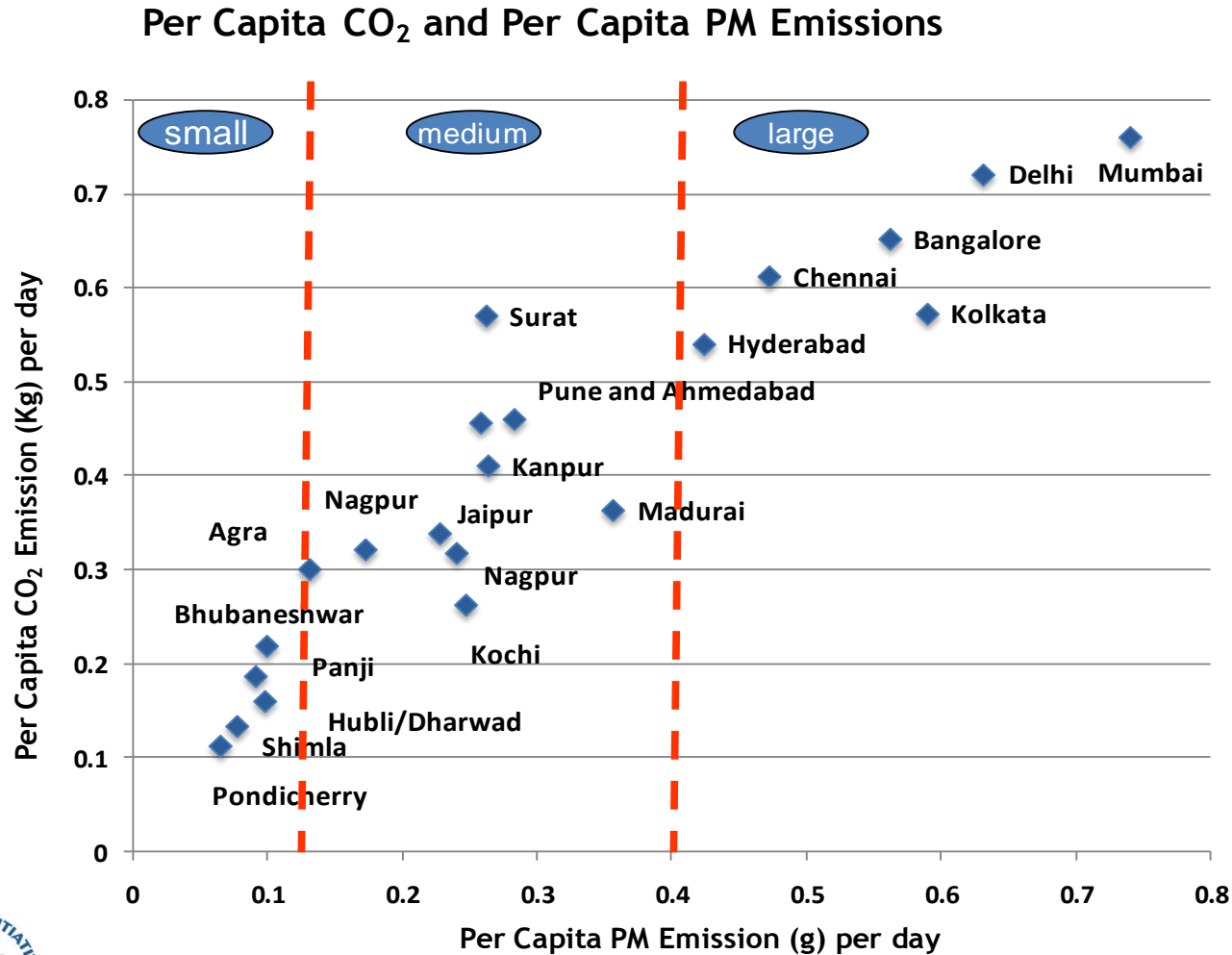


# Co-benefits in transport projects



Source: ADB and CAI-Asia Center, 2009 (for publication)

# AVOID: unnecessary emissions in the future – Case of Indian Cities



- Indian cities show strong correlation between emissions of air pollutants and GHGs
- As cities grow in size, transport emissions increase
- Importance of catching cities early before they start to grow

# SHIFT: motorized to non-motorized transport

## Case of Marikina Bikeways, Philippines

- From 1996 to 2008 - 52 km of bikeways funded by LGU and then GEF contributed 1.3 Million USD from World Bank –GEF for expansion (about 56% funded by LGU and 43% from GEF)
- GEF estimates that in the medium scenario by 2015, bike share would be 12.3% of total vehicle share
- Taking 2000 as base year and considering a 20 year life cycle, bike lanes would save approximately:
  - 62,000 Tons of CO<sub>2</sub>
  - 36 Tons of PM
  - 72 Tons of NOx
  - 17.5 Million\$ of fuel saved
- Economic Analysis
  - Using **10\$ for ton of CO2** and using fuel savings – **IRR = 10%**,
  - If only fuel savings are considered than - **IRR = 9% ??**
  - Using **100\$ per ton of CO2** and using fuel savings – **IRR = 11%**



# IMPROVE: Application of technologies for heavy duty (long haul) trucks in Guangdong Province

- Technology packages
  - Tires: tire pressure monitoring, low rolling resistance tires, aluminum wheels
  - Aerodynamics: nosecone, fairings, skirts
- Savings per truck per year
  - Fuel : 14,772 liters (17%, based on US experience)
  - CO2 emissions: 37.9 tons
  - NOx: 0.239 tons
  - PM: 0.016 tons
- Payback period: 1.3 years
- If applied to estimated 826,000 HDTs in Guangdong Province
  - Fuel savings: 12.2 billion liters fuel per year
  - CO2 emission reductions: 31.7 million tons per year



# Support for integration of co-benefits in climate: developing country leaders

*"Efforts are needed to pursue sustainable development, as climate change is ultimately a development issue and it can only be addressed in the course of sustainable development."*

Hu Jintao, President of People's Republic of China, APEC meeting 2007

# Support for integration of co-benefits in climate: scientific community

“Integrating air pollution abatement and climate change mitigation policies offers potentially large cost reductions compared to treating those policies in isolation”

*Intergovernmental Panel on Climate Change (IPCC)  
Fourth Assessment Report, 2006*

Black carbon significantly contributes to global warming, second to CO<sub>2</sub>

*Ramanathan, V. and G. Carmichael (2008). Global and regional climate changes due to black carbon. Nature Geoscience, 1, 221-227.*



# Support for integration of co-benefits in climate: transport experts and development organizations

## *Bellagio Declaration on Transportation and Climate Change*

### **Climate action in the transport sector should recognize co-benefits:**

- Acknowledge the importance of co-benefits of low carbon sustainable transport policies
- including air pollution abatement, enhanced health protection, reduced congestion, diminished accident rates, improved productivity and energy security
- as being equally important to bring about low carbon sustainable transport
- by institutionalizing support and incentives for sustainable transport interventions that maximize co-benefits together with CO2 reductions

# Challenges to mainstream co-benefits of transport in climate

- Measurement of co-benefits
  - Difficult, costly and time-consuming
  - Few standardized methodologies
- Limited awareness, knowledge and capacity of policy makers, transport planners, engineers and donors/investors
  - Limited application in EIAs and post project assessment
  - Co-benefits approach not mainstreamed in policies
- Fragmented policy and institutional framework in the transport sector
- Limited focus on co-benefits in CDM projects



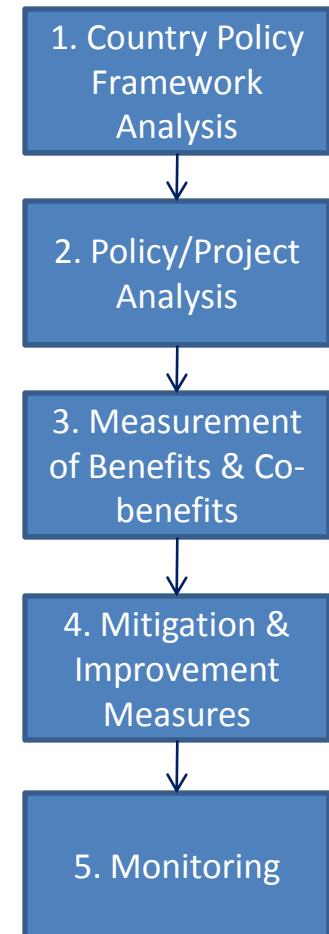
# Challenges to mainstream co-benefits of transport in climate

## CDM

- CDM process intended to give weight to sustainable development issues relevant to the country, i.e. co-benefits, through sustainability criteria
- CDM in practice focused on CO2 reductions
  - DNA approval criteria do not include criteria
    - in absolute terms (minimum tons of pollutant reduced)
    - relative terms (minimum ratio with GHG reduced)
  - Separate assessment of CO2 reductions and sustainability indicator
  - No verification / certification process for sustainability indicators

# Recommendations to mainstream co-benefits of transport in climate

- Measurement
  - Include in appraisal, evaluation and monitoring of transport projects
  - Improve baseline data gathering for quantifying CO2 and air pollutant emissions
- Policy
  - Standardized process needed based on sustainable development and integrating CO2 in transport
  - Integration of co-benefits in a post-Kyoto agreement
- Financing – (monetary) quantification of co-benefits will increase
  - Investment in sustainable transport projects
  - Attention of financiers in the public and private sector to direct investments from conventional to sustainable transport
- Institutional framework
  - Central coordination
  - Strengthened relationship between government agencies responsible for transport, climate change, environment/air pollution, and energy



# Mainstream co-benefits in climate framework: AWG-KP

- AWG-KP agreed to consider, with due attention to improving the environmental integrity of the Kyoto Protocol, in particular
  - Possible improvements to emissions trading and project-based mechanisms under the KP on their scope, effectiveness, efficiency, accessibility, contribution to sustainable development, **capacity to generate co-benefits**, and the transfer of technology
  - Possible broadening of the coverage of GHGs (*black carbon, ozone?*), sectors and source categories, and its implications based on sound science

Report of the Ad-Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol on the first part of its fifth session, held in Bangkok, from 31 March to 4 April 2008  
<http://unfccc.int/resource/docs/2009/awglca6/eng/inf01.pdf>



# Mainstream co-benefits in climate framework: AWG-LCA

- The new mechanism should include registering sustainable development benefits, **co-benefits** and GHG emission reduction as outcome of each NAMA
- Co-benefits should be included as eligibility criteria for project activities including
  - technology transfer
  - capacity-building
  - employment creation
  - environmental conservation (such as air pollution reduction)
- These criteria shall be defined by the CDM Executive Board or a new body to be created under the Convention
- Projects that demonstrate co-benefits should be promoted through a number of measures including lower registration fees and expedited registration measures







# CAI-Asia Center

[www.cleanairnet.org/caiasia](http://www.cleanairnet.org/caiasia)

**Sophie Punte, Executive Director**

[sophie.punte@cai-asia.org](mailto:sophie.punte@cai-asia.org)

**Bert Fabian, Transport Program Manager**

[bert.fabian@cai-asia.org](mailto:bert.fabian@cai-asia.org)

**Sudhir Gota, Transport Specialist**

[sudhir@cai-asia.org](mailto:sudhir@cai-asia.org)

Unit 3510, 35<sup>th</sup> floor  
Robinsons-Equitable Tower  
ADB Avenue, Pasig City  
Metro Manila 1605  
Philippines