Global Transport Emission Reduction Campaigns: Gaps and Opportunities

Robert Earley
Transport Program Manager
Clean Air Asia

Rob.earley@cleanairasia.org

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Clean Air Asia leads efforts to enable Asia’s 1,000+ cities to reduce both air pollution and \( \text{CO}_2 \) emissions, and thereby contribute to more livable and healthy cities with blue skies and a low carbon footprint. Emissions can be reduced through policies, plans, programs, and concrete measures that cover air quality, transport and industrial emissions, and energy use.

Decision makers use reliable analysis, knowledge, data and effective tools to understand the program and identify solutions.

Stakeholders at the city, national and regional level cooperate better through networks and partnerships.

Policies and programs are in place that are science-based, stakeholder-inclusive and effective.
Outline of the Presentation

- Background
- Research Objective
- Methodology
- Identified Priority Areas
  - PM$_{2.5}$ and black carbon emissions
  - Emissions from 2- and 3-wheelers
  - Green Freight
  - I/M Programs
  - Secondary markets for outdated vehicles and engines
- Conclusions
Introduction

- Increases in urban populations in Asia, Africa, and Latin America and the Caribbean are projected to grow by 1.4 billion, 0.9 billion, & 0.2 billion respectively.
- CO\textsubscript{2} emissions from fossil fuel combustion will increase 45\% from 2006 to 2030, 97\% of this growth will be in non-OECD countries. (IEA, 2011)
- Currently, the transport sector is responsible for 23-24\% of global emissions; 17-18\% of which are from road transport activities.
- In 2030, the number of motor vehicles on the world’s roads is projected to double from its 2010 level – 1.4 billion to 2.8 billion
Objectives

- Provide an overview of transportation emission management initiatives at the global level
  - Identify gaps where future interventions would have significant positive impacts on emission reduction efforts
  - Identify and recommend potential areas for action
RESULTS AND DISCUSSION
PM$_{2.5}$ and Black Carbon Emissions

Gaps

- Diesel engines and vehicles are their primary sources in transport.
- Exhaust from diesel engines has been identified as a carcinogen by the WHO.
- Asia accounts for the bulk of PM$_{2.5}$ and BC emissions.
- Lack of or ineffective implementation of more stringent fuel & vehicle standards to address this.

Source: [http://www.epa.gov/blackcarbon/basic.html](http://www.epa.gov/blackcarbon/basic.html)
PM$_{2.5}$ and Black Carbon Emissions Opportunities

- Implementation of more stringent fuel and vehicle standards, where these are established; enactment of tighter standards, where they are not for new vehicles
- Implementation of incremental technology improvements to in-use vehicles to complement stringent standards
- Exploration and promotion of alternative fuels & hybridization
- Curbing emissions will result in co-benefits (climate change mitigation) and improved public health
Emissions from Two- and three-wheelers

Gaps

● Increase in the number of motorcycles and percentage share in total vehicle fleet
● This increase is unaccompanied by stringent standards and/or technologies to curb emissions

Opportunities

● Strengthen campaigns and initiatives that retrofit old engines, introduce alternative fuels and vehicles (e.g. e-tricycles)
● Feebate-rebate programs
Green Freight

Gaps

● Medium- and heavy-duty vehicles, comprise a small percentage (less than 10%) in total vehicle fleet but account for majority (more than 50%) of total CO\textsubscript{2} emissions from the sector

● Lack of policies that address emissions from road freight

● Sector fragmentation; lack/unavailability of data to support and measure initiatives

(Projected) travel activity of trucks in Asia

Source: Clean Air Asia, 2012
Green Freight

Opportunities

● A number of successful pilot projects that can be scaled up and replicated at the national and/or regional levels

● Regional initiatives (e.g. GFA, Green Freight Europe, Smartway) to streamline activities and operations
Gaps

- National governments’ lack of resources and capacity to conduct and oversee I/M operations
- Decentralized I/M systems leave much room for rent-seeking behavior
- Ineffective enforcement

Opportunities

- Complementation of existing programs with existing standards
- Packaging incentives in a manner relevant to key stakeholders
- Awareness raising campaigns
Migration & continued use of outdated vehicles and engines

Gaps

- Lack of policies that address vehicle and engine scrappage certification
- Vehicles with technologies deemed obsolete are transferred to areas with less stringent standards
- Gap in international and regional export/importation standards & transboundary movement of retired vehicles

Opportunities

- Concerted action at the regional and international levels; e.g. a global campaign on emission standards for imported second-hand vehicles to raise the awareness on the issue
Conclusions

- Fuels and vehicles comprise a system and campaigns need to be cognizant of the interconnectivity of issues and potential benefits.
  - Curbing PM$_{2.5}$ and black carbon emissions from diesel engines cuts across other priority issues: green (road) freight, emissions from two- and three-wheelers, and stringent standards for imported second-hand vehicles.
Conclusions

- Policies and standards, when effectively implemented, strengthen/contribute to the success of existing programs
  - I/M programs need to be backed up by stringent standards and efficient and effective systems of implementation
  - Technologies (e.g. DPFs) to reduce emissions from in-use vehicles can only be used when sulfur content in fuels are significantly low
China
India
Indonesia
Nepal
Pakistan
Philippines
Sri Lanka
Vietnam

Clean Air Asia Center
center@cleanairasia.org
Unit 3505 Robinsons Equitable Tower
ADB Avenue, Pasig City
Metro Manila 1605
Philippines

Clean Air Asia China Office
china@cleanairasia.org
901A Reignwood Building,
No. 8 YongAnDongLi
Jianguomenwai Avenue Beijing
China

Clean Air Asia India Office
india@cleanairasia.org
1st Floor, Building No. 4
Thyagraj Nagar Market, Lodhi Colony
New Delhi 110003
India

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