Health Impacts from Transport

Cristiano Façanha

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Global Transportation Health and Climate Roadmap Series

Roadmap Model

Global Transportation Energy and Climate Roadmap

The Impact of Vehicle and Fuel Standards on Premature Mortality and Emissions
http://www.theicct.org/global-health-roadmap
Increasing urbanization and densification can increase exposure to harmful pollutants if not coupled with clean vehicles and fuels.

Current emission controls can cut vehicle emissions by 99%.

Vehicle emission standards can drive the introduction of emission controls such as diesel particulate filters (DPFs).

Fuel standards can ensure supply of low sulfur fuels.

UNEP 2009. Cleaning up Urban Bus Fleets
There is wide discrepancy regarding the stringency of vehicle emission standards worldwide.

A global focus on health impacts from transportation is critical to provide policy insights

- Global study to evaluate health impacts of stringent vehicle emission and fuel controls.
- Regional groupings by policy progress, geography, and economic development
- Evaluation of accelerated policy roadmap
- Health impacts from urban PM$_{2.5}$ (premature deaths from lung cancer, cardio-pulmonary disease, and respiratory infections).
- Streamlined methodology to circumvent the need for detailed air quality modeling.

Latest vehicle controls can reduce emissions and premature mortality worldwide by 75%.

At a global level, health impacts from urban vehicle particle emissions will increase 50% by 2030 unless new vehicle and fuel standards are adopted.

Globally new standards could save 210,000 early deaths in 2030 and 25 million of years of life through 2030.

Buses with advanced emissions controls are a win-win solution for climate and health

### Milligrams PM per passenger-km

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Bus</th>
<th>Motorcycle</th>
<th>Passenger car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline technology</td>
<td>8.2</td>
<td>18.2</td>
<td>2.4</td>
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<tr>
<td>Advanced technology</td>
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<tr>
<td></td>
<td>✓</td>
<td>0.6</td>
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### Grams CO2 per passenger-km

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Bus</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Baseline technology</td>
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<td>31</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>✓</td>
<td>156</td>
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- Baseline technology (Euro 3/III) buses have higher PM emissions per passenger-km than cars
- Advanced technology (Euro 6/VI) buses have lowest PM
- Buses are less carbon intensive than motorcycles and cars
In Latin America, technology and activity combined can reduce health impacts by 84%.

- Premature deaths vary by 26% between the four urban mobility scenarios.
- A package of technology and activity can stabilize health impacts from transportation (despite projections of activity growth in Latin America).

Sources:
VKT projections from ITF Outlook 2013
Emissions and health impact projections from ICCT’s Roadmap model
Moving forward

- Joint partnership between ITF and ICCT to evaluate health impacts in China and India for ITF’s Outlook 2014
- Consider both climate and health impacts from transport when addressing environmental protection
- Think about technology and activity solutions as a package
- Require new transit systems to adopt state of the art vehicle technologies (and fuel) to minimize health impacts, especially in those countries without stringent national emission controls
Thank you! For more information:

Cristiano Façanha, cristiano@theicct.org