Reducing Carbon Emissions from Transport Projects

Climate change has emerged as an important threat to economic development, environment, and public health. As a key development partner in Asia, ADB needs to find ways to mitigate the impact of climate change, especially the impact that is linked to greenhouse gas (GHG) emissions. ADB’s long-term strategic framework, Strategy 2020, includes a plan for scaling up “support for environmentally sustainable development, including projects to reduce carbon dioxide emissions and to address climate change.” Strategy 2020 emphasizes ADB’s commitment to help developing member countries (DMCs) to move their economies to low carbon growth paths by modernizing public transport systems. It also highlights ADB’s intention to reduce carbon footprint of Asia’s cities. ADB’s current safeguard policy statement requires active monitoring of GHG emissions.

As a key development partner in Asia, ADB needs to explore opportunities to reduce carbon dioxide (CO\textsubscript{2}) emissions (or carbon emissions) and attract eligible funds for low carbon initiatives. This study provides new tools to measure how different transport projects funded by ADB affect carbon emissions and offers suggestions to reduce ADB’s transportation sector carbon footprint. The tools developed through this study can be used in conjunction with other economic analysis tools that take into account costs and benefits of specific types of transport services and their development impacts.

Sustainable economic development is likely to remain a key driver for ADB’s projects in the transport sector. This study makes recommendations that would enable a shift in ADB’s funding from less sustainable transport projects, such as conventional road expansion, to more innovative low carbon strategies that better support sustainable development.

**Key Findings**

This study quantifies the gross carbon emissions from the construction and operations of ADB-funded transport projects approved between 2000 and 2009. It also identifies carbon intensity indicators linked to outputs, mobility, and investment, which can be used to track future performance. The main findings of the study were:

- Expressway projects were found to increase CO\textsubscript{2} emissions over their 20-year lifetime compared with business as usual, because of effects on induced travel that overwhelm the short term benefits of curbing low-efficiency congested traffic.

**Quick Links**

Reducing Carbon Emissions from Transport Projects

Emission Models

ADB Clean Energy Program

ADB Management Response

Chair’s Summary of the Development Effectiveness Committee (DEC)
[www.adb.org/BOD/dec/DEC-ChairSum-EKB-REG-2010-16.pdf](http://www.adb.org/BOD/dec/DEC-ChairSum-EKB-REG-2010-16.pdf)

Buses, trucks and motorcycles caught on traffic along a major urban thoroughfare in India. India is the fourth largest country with the highest carbon emission after the People’s Republic of China, United States and European Union.
Rural road and road rehabilitation projects were found to have a neutral or slightly reducing effect on CO₂ emissions compared with business as usual. These improved the efficiency of traffic flow and reduced low-speed high carbon intensity travel.

Public transport investments and railway improvements, while generating new CO₂, more than offset those emissions when they divert passenger and freight movements from higher carbon modes and improve the efficiency of traffic flows.

Investments that reduce CO₂ tend to reduce air pollution and public health problems linked to transportation, while investments that boost CO₂ tend to also boost air pollution and public health problems. Integrated transport investments that focus on both demand- and supply-side strategies, including operations and demand management, yield greater co-benefits for mobility, CO₂, and pollution.

**Implications for ADB**

- ADB needs to consider raising awareness of carbon emissions among its member countries, stakeholders, and staff.
- ADB needs to consider making use of dynamic baselines in assessing carbon dioxide emission impacts of projects, comparing projects against business-asusual scenarios.
- ADB needs to consider monitoring of absolute carbon dioxide emissions at project level.
- ADB needs to consider including the impacts of savings in CO₂ and air pollution emissions on economic viability.
- ADB could consider monitoring the intensity of CO₂ emissions related to its projects.
- ADB could adopt a short-term and a long-term strategy for addressing carbon emissions.
- ADB needs to consider support for integrated approaches to urban planning and management.
- ADB needs to consider how to include public transport in transport projects.

**Recommendations**

- Adopt carbon emissions as a consideration for project design, review, and appraisal
- Encourage modal shift in ADB investments
- Consider systematic indicators to monitor the intensity of carbon emissions from transport investments in alignment with the emphasis given in Strategy 2020 to climate change issues
- In partnership with developing member country governments, align ADB’s sustainable transport initiatives with nationally appropriate mitigation actions

**Feedback**

ADB Management welcomes the study and highlights the importance of the tools that can inform ADB’s efforts to assist its DMCs in moving their economies to low carbon growth paths and reducing the carbon footprint in Asia. Management agreed with the overall recommendations, but with the understanding that a suitable approach and a robust methodology will be first developed by ADB and other relevant parties. The recommendations need to be considered with current limitations in mind and progressively piloted, where applicable, to ensure that ADB can implement the recommendations in a systematic and sustainable way.

The Chair’s Summary of the Development Effectiveness Committee (DEC) complimented the methodological rigor and the coverage of the study, and hoped that this will help ADB and its DMCs make better informed choices among transport alternatives. DEC members hoped that ADB and DMCs will choose win-win strategies whereby development outcomes would be maximized and carbon footprints would be minimized from their optimal choice of transport projects. These choices will take into account costs, income streams, and productivity of the economies.