

Calculator: Transport Emissions Evaluation Models for Projects

<http://cleanairinitiative.org/portal/TEEMPTool>

Summary

The Clean Air Initiative (CAI) Asia, together with the Institute of Transportation and Development Policy (ITDP), the Asian Development Bank (ADB), Cambridge Systematics and the United Nations Environment Programme Global Environment Facility (UNEP-GEF), have developed 14 excel-based models collectively called the “Transport Emissions Evaluation Models for Projects” (TEEMP). The TEEMP tools were initially developed for evaluating the emissions impacts of ADB's transport project and have been modified and extended for GEF projects. The tools calculate CO2 emissions associated with a range of transport modes.

Developers: ADB, CAI-Asia, ITDP, UNEP- GEF, Cambridge Systematics

Applicable sectors							Themes		
All Infrastructure	Buildings	Roads	Water	Energy	Transport	Construction	Materials	Ecology	Wastewater
							Potable Water	Carbon/GHG	Other

Countries	International, particularly developing countries where information access is limited.	Access	Free to download
Compatibility with other tools	No specific tool	Guidance for users	The TEEMP tools are accompanied by a <i>Manual for Calculating GHG Benefits of GEF Projects</i> . The Manual is a step-by-step guide to the development of baseline, impact estimation and calibration of transport projects. Project types include: transport efficiency improvement, public transport, non-motorized transport and transport demand management based on TEEMP tools.
Database library	Each TEEMP tool contains its own inbuilt databases depending on the subject of the calculation.		

Tool Summaries

- 1. City Sketch Analysis:** This tool estimates the impact of transport projects on CO2 emissions. The methodology consists of a baseline scenario (business-as-usual/ no change) compared to a 'with-project' scenario which considers use of: expressways, rural roads, rehabilitated roads, Bus Rapid Transit, railways, metros and bikeways.
- 2. Pedestrian Projects:** This tool estimates the emission reductions due to changes in mode of pedestrian transport including walking, cycling, two-wheeler, public transport, car, intermediate public transport and metro.
- 3. Bike Share projects:** This tool estimates emission reductions due to a shift to bike-sharing after the project, from modes of walking, bus, taxi-car, car, private bicycle, motorcycle, three-wheeler, others or no travel prior to the project.
- 4. Bikeways projects:** This tool allows a detailed or rough calculation of emission reductions due to a bikeway project, given parameters of planned facilities, quality of bikeway surface, network connectivity, meteorology and climate friendliness of design, bike parking, bike contraflow lanes, topography, availability of lighting, active traffic calming measures, priority at junctions, integration with public transport, and mode shifts from cars, taxis, buses etc.
- 5. Rural Roads Improvement:** This tool estimates emissions associated with rural road improvement projects considering parameters including number of lanes, distance of roads, local traffic, road capacity, occupancy loading, emission factors for particulate matter and NOx for different rural road vehicles.

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Note: "Free to download" does not necessarily imply that it is free for commercial use.

Tool Summaries (continued)

6. Urban Roads Improvement: The tool estimates emissions associated with urban road improvement projects considering parameters including number of lanes, distance of roads, local traffic, road capacity, occupancy loading, emission factors for particulate matter and NOx for different urban road vehicles.
7. Rural Expressways: The tool estimates emissions associated with rural expressway projects considering parameters including number of lanes, induced traffic elasticity, capacity for different vehicle types, their emission factors, their base fuel consumption, road distance, local traffic, road capacity, occupancy loading, construction (cement, bitumen, cement), emission factors for particulate matter and NOx for different urban road vehicles and traffic information for each vehicle type.
8. LRT/MRT Projects: The tool estimates emissions associated with metro projects by considering emissions due to metro construction and metro operation, less emissions saved due to mode shift from other forms of transport and due to land use impact.
9. Bus Rapid Transport Projects: The tool estimates emissions savings associated with projects by considering parameters including: components, length, ridership, fuel type, fleet emission factors, construction and other parameters such as speed, technology split, fuel type split, occupancy, fuel efficiency at 50kmph, mode share, trip length and vehicle emission factors.
10. Railway Projects: The tool estimates emissions associated with a new railway project by considering length, number of tracks, passenger data, freight data (incl. emission factors). It also considers construction emissions using quantities of intermediate products used or amount of construction materials.
11. Commuter Strategies: The tool estimates the annual reduction in Vehicle Kilometres Travelled (VKT) and GHGs until 2030 from staff commuting due to different employer-based commute strategies, employer support strategies, telework models and compressed week models.
12. Pricing Strategies: The tool estimates the annual reduction in VKT and GHGs until 2030 from different city parking pricing models, parking density models and company car models.
13. Eco-Driving: The tool estimates the annual reduction in GHG emissions until 2030 depending on ecodriving marketing and ecodriving training strategies selected.
14. PAYD Insurance: The tool estimates the annual reduction in VKT and GHGs from these insurance schemes.