



Investigation of CO₂ emission reduction strategy from in-use gasoline vehicle

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On road transport emissions is kicking off in Indian cities due to high levels of urbanization and economic growth during the last decade in Indian subcontinent. In 1951, about 17% of India's population were living in urban areas that increased to 32% in 2011. Currently, India is fourth largest Green House Gas (GHG) emitter in the world, with its transport sector being the second largest contributor of CO₂ emissions. For achieving prospective carbon reduction targets, substantial opportunity among in-use vehicle is necessary to quantify. Since, urban traffic flow and operating condition has significant impact on exhaust emission (Choudhary and Gokhale, 2016). This study examined the influence of vehicular operating kinetics on CO₂ emission from predominant private transportation vehicles of Indian metropolitan city, Guwahati. On-board instantaneous data were used to quantify the impact of CO₂ emission on different mileage passenger cars and auto-rickshaws at different times of the day. Further study investigates CO₂ emission reduction strategies by using International Vehicle Emission (IVE) model to improve co-benefit in private transportation by integrated effort such as gradual phase-out of inefficient vehicle and low carbon fuel. The analysis suggests that fuel type, vehicles maintenance and traffic flow management have potential for reduction of urban sector GHG emissions.

Keywords: private transportation, CO₂, instantaneous emission, IVE model

Reference

Choudhary, A., Gokhale, S. (2016). Urban real-world driving traffic emissions during interruption and congestion. *Transportation Research Part D: Transport and Environment* 43: 59-70.