



Emission estimation and impact of mitigation strategies in reducing the emission from road transport sector of India

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Transport sector of India is one of the carbon-intensive sectors, where road transport contributes around 90 percent of the total transport emission. Emission estimation is largely dependent on the vehicle population, economic development and consumption of fossil fuel. As per Nationally Determined Contributions (NDC), India needs to take necessary actions at the sectoral and sub-sectoral level to mitigate emissions.

In the current study, transport inventory is built for the reference year (2016) and for the future target year (2040) in order to estimate emissions of CO₂, NO_x, CO, SO₂ and PM from road transport for both passenger and freight transport. The inventory is built using a bottom-up approach for vehicles of different categories running on petrol, diesel and CNG fuels. The emission estimation is done at the national level road transport sector. The future vehicle ownership is projected with respect to income per capita using Gompertz curve to estimate vehicle population in 2040.

After building a business-as-usual (BAU) scenario for 2040, different mitigation scenarios are applied to estimate emission reduction. These mitigation scenarios are based on the policy interventions suggested by the Government of India such as the diffusion of electric vehicles, improvement in fuel efficiency and an increase in the share of public transport. The study evaluates mitigation strategies applied based on emission reduction achieved.