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## The demand for road-based passenger mobility in India: 1950-2030 and relevance for developing and developed countries

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### Abstract

The main aim of the paper is to estimate the demand for road-based passenger mobility in India and subsequently project the energy demand and CO2 emissions resulting from the same. Based on a data set of the four major motorized modes of transport – buses, cars (including jeeps and taxis), two-wheelers, and auto-rickshaws from 1950-51 to 2000-01, long-term trends in motorized traffic volume and modal split are projected up to the year 2030-31. It is found that the road-based traffic volume in India will increase from 3079 billion passenger-kilometers in 2000-01 to 12546 billion passenger-kilometers in 2030-31. Between 2000-01 and 2030-31, the aggregate share of private- and para-transit modes is projected to increase from 24.3% to 55.3% whereas the share of public transport mode is estimated to decrease from 75.7% to 44.7%. Based on the projected values of aggregate traffic volume, modal split, and modal intensities for energy demand and CO2 emissions, the paper then estimated the level of energy demand and CO2 emission from the road-based passenger transport sector in India. If there is no reduction in modal intensities, energy demand is projected to increase from 954 peta joules in 2000-01 to 5897 peta joules in 2030-31 whereas CO2 emission is estimated to increase from 17.27 to 93.22 million metric tons of carbon equivalent during the same period. Even when we assume a reduction of 1% per year in energy and CO2 intensity of all modes of transport, energy demand and CO2 emission is projected to increase by a 4.6- and 4.0-fold respectively from 2000-01 to 2030-31.

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