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R Krishnakumar, DHNS, Bengaluru, **OCT 31 2022, 22:58 IST | UPDATED: NOV 01 2022, 04:44 IST**

Representative image. Credit: DH Photo

Transportation policies that use combinations of regulatory, economic and technological interventions are critical in preparing Bengaluru for future growth, a new study has found.

The study, by researchers in the Sustainable Transportation Lab (IST lab) of the Indian Institute of Science, used various combinations of policies to identify the most impactful way to reduce vehicle kilometres travelled (VKT), emissions and carbon emission intensity in Bengaluru metropolitan region for two target years – 2030 and 2050.

The study – Evaluating the Climate Change Mitigation Potential of Sustainable Urban Transport Measures in India – was done by Harsha Vajjarapu, Ashish Verma and Hemanthini Allirani.

As part of the study, 32 policies in planning, regulations, economy and technology were evaluated by 23 stakeholders, including officials in BMTC, BBMP, Karnataka State Pollution Control Board, traffic police and citizens' groups.

Policies in bundles

Based on the evaluation, relevant policies were grouped under three 'policy bundles'. Another compilation – bundle 4 (B4) – was formulated by retaining policies in bundle 3 and incorporating the union government's proposal for complete electrification of buses and cars by 2030. The findings revealed that bundle 4 was most effective in bringing down VKT and emissions.

The seven policies that constituted B4 are levying extra tax on vehicle purchase, no-car roads, congestion pricing, provisions for parking and riding, infrastructure for cycling and walking, carpooling and separate lanes for high-occupancy vehicles and mixed land use in high-density corridors which could have a positive impact on public transport ridership.

"The policies cannot work in isolation and have to be linked with efforts to address related issues. For instance, electric mobility cannot be a solution if the energy sources are non-renewable. The findings could be a good starting point for the bureaucracy to work with a mix of relevant interventions," Ashish Verma, convenor, IST Lab, told *DH*.

Numbers speak

The best emission reduction for all pollutants came from B4-S4 (Bundle 4 Scenario 4), where electrification is ensured entirely through renewable energy *(see box)*. In B4-S4, the reduction of Carbon Dioxide (CO_2) was as high as 80% and 94% for 2030 and 2050, respectively.

Improved public transportation infrastructure was seen to reduce travel time, leading to reduced use of two-wheelers, cars and autorickshaws and increased public and non-motorised transport usage. The reduction in VKT was estimated at 18% and 16% in 2030 and 2050, respectively.

B3 and B4 showed the highest savings for public transport and NMT users and the highest losses for private vehicle users.

With interventions aimed at reducing congestion and emissions and ensuring social benefits, the study pitches itself as a comprehensive resource for Bengaluru's transport planning authorities.

The study used 2008 as base year and comparisons with the target years were made from a baseline scenario on land use and emissions before the intervention.