



Ashish Verma, professor and head of the Sustainable Transportation Lab at the Indian Institute of Science

Air

India on e-wheels: ‘Personal EVs alone cannot solve India’s urban transport problems’

India must focus on moving more people with less energy, rather than simply adding more vehicles and road infrastructure, says IISc professor and transportation expert Ashish Verma

 Akshit Sangomla

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Summary

- *India's EV transition must go beyond personal electric vehicles and prioritise shared, public and active mobility, says IISc professor Ashish Verma.*
- *Verma says electric buses, suburban trains, metro rail and clean power should be treated as central parts of the electric mobility system.*
- *India must maximise passenger kilometres per unit of energy consumed to reduce congestion, improve air quality and build resilience against fuel-price shocks, he says.*

India's electric mobility transition will deliver far greater gains if it is built around shared, public and active transport, rather than only personal electric vehicles, says Ashish Verma, professor and head of the Sustainable Transportation Lab at the Indian Institute of Science. In this interview, he explains why electric buses, metro rail, suburban trains and clean power must be central to India's transport planning, and why the country needs to maximise passenger kilometres per unit of energy consumed to become more resilient to fuel and price shocks.

Edited excerpts:

Akshit Sangomla (AS): What kind of work on sustainable transportation is your lab doing, and what is the role of electric mobility within it?

Ashish Verma (AV): Our work at the Sustainable Transportation Lab is focused on a systems approach to sustainable transportation. Under this, we are looking at core issues of transport, such as congestion, along with other inter-related aspects, including climate change, public health, equity, affordability and land-use impacts.

Through this approach, we want to solve mobility, sustainability and liveability issues together, and prepare cities for better disaster resilience. We have been looking at shared mobility, public transport, integration of active modes of transport, clean energy and clean fuels for mobility systems.

In terms of electric mobility, we have looked at electric vehicle adoption, problems of charging infrastructure planning, and people's choices about where and when to charge their electric vehicles.

Many times, in discussions about electric vehicles, we tend to forget that suburban trains, urban trains, metro rail and electric buses are also part of the larger electric mobility system. The more you push people towards using these modes, the more useful it will be than just focusing on personal electric vehicles.

Cars, whether fossil-fuel-based or electric, need to be reduced in number in urban areas. In smaller cities, conventional metro rail systems are too big, but they can be supported with electric buses, or in some places, depending on requirements, even light rail systems.

There are three silver bullets for a sustainable transportation system — shared, electric and active mobility — whether in big cities or smaller ones.

AS: Within electric mobility, it is crucial to look at how electricity is being generated and whether it mostly comes from renewable energy sources. How significant is this aspect?

AV: We have run network-level simulations for cities such as Bengaluru to show what happens if there is a push towards shared and electric mobility, and if the source of electricity is mostly renewable.

Within this, we also considered various scenarios with different levels of renewable energy in the mix, ranging from no renewable sources to 100 per cent renewable sources for generating electricity. In all these scenarios, we gauged the impacts on emissions, sustainability and liveability.

As we push towards renewable energy as the major source of electricity, along with a larger share of shared and electric mobility, it would have a positive domino effect on all the important aspects — decarbonisation, improving air quality, and reducing core problems such as traffic congestion and long travel times.

AS: How do you see electric mobility at a time of challenges around fuel availability and prices?

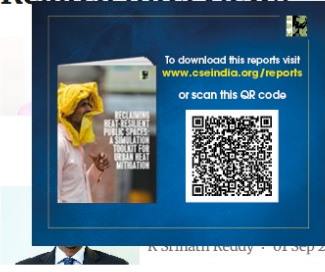
AV: At a time when we are struggling with fuel availability and prices, debates around ethanol blending and other shocks, we need to reduce and optimise our consumption.

What needs to be kept in focus is the maximisation of passenger kilometres per unit of energy consumed in transportation. When we talk about maximising passenger kilometres per unit of energy consumed, it means increasing the number of people and the distances travelled using electric mobility, while decreasing the energy used.

This should be our focus if we want to make our country resilient to fuel and price shocks. This is also because we are not an oil-producing country, and 70-80 per cent of our consumption is based on imports.

Simply increasing the number of vehicles and road infrastructure without optimising energy use is a waste of energy. Unfortunately, the central government's focus is on making European cars cheaper for us, which goes against the ideas of sustainability, liveability and resilience.

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