Press Release

Targeting super-emitter HCVs can reduce road pollution by 60%, says study

For Immediate Release

Key Takeaways

- By 2035, the number of heavy commercial vehicles (HCVs) will rise by 27%.
- Except in a few states and union territories, such as Delhi and Puducherry, the majority of $PM_{2.5}$ emissions come from trucks.
- Super-emitters constitute only 23% of the fleet, but they contribute to 62% of $PM_{2.5}$ emissions.
- Targeting super-emitters can reduce HCV emissions by ~60%.
- Implementing low-emission zones can reduce HCV emissions by 15%–30%, but it is still in a pilot phase in India.
- Mandatory scrapping of old HCVs can reduce emissions by 44% by 2035. To replace nearly 85,000 vehicles, ~28,000 crores worth of infrastructure would be needed.
- Retrofitting can result in an immediate reduction in emissions. The estimated cost is INR 1.3 thousand crores for retrofitting ~3 lakh vehicles.
- Switching to EVs or cleaner alternative fuels can reduce emissions, but the high cost and a lack of infrastructure are the barriers. Cleaning up about 70,000 vehicles would require INR 100 thousand crores.

Bengaluru, 21 August 2025

Trucks are the major contributors to vehicular pollution in most Indian states. Of these, super-emitter trucks or heavy commercial vehicles (HCVs) emit 4 to 11 times more than non-super-emitter ones.

In its study, *Heavy Duty, High Impact: Mitigating Heavy Commercial Vehicle Emissions in India*, the Center for Study of Science, Technology and Policy (CSTEP), a research-based think tank, found that super-emitters contribute to 62% of particulate matter ($PM_{2.5}$) emissions, although they constitute only 23% of the fleet. The report, which was launched at the India Clean Air Summit 2025 in Bengaluru on Wednesday, calls for focused interventions on super-emitters. This is so, given the major role of HCVs in increasing air pollution and the estimated increase in HCV numbers by 27% by 2035. Using remote sensing technology and mandating periodic testing to target super-emitters can reduce emissions by nearly 60%. But current policies, such as the Voluntary Vehicle Fleet Modernisation Programme (VVMP) and the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) scheme, lack specific measures for super-emitters.

Swagata Dey, Policy Specialist at CSTEP and one of the authors of the report, said that ‘Although a major source of vehicular emissions, freight has been ignored all along. We are used to seeing older polluting trucks, but there is no policy instrument to target these super-emitters. We will not be able to clean up our transport system with just new electric vehicles, if these older ones continue to ply on our roads’.

The report also suggests other measures, such as introducing mandatory scrapping of HCVs older than 15 years, which can reduce pollution by 44% by 2035. Building scrapping facilities and providing financial incentives to buy new vehicles will be crucial moves to cut down pollution.

Cleaning up the transport sector can also occur through switching to electric vehicles (EVs) or cleaner alternative fuels. However, barriers such as high EV cost and a lack of charging infrastructure need to be addressed. As per the study, around INR 100 thousand crore is needed to clean up nearly 70,000 HCVs projected to be on the roads by 2030.

Other targeted measures, such as subsidies to support retrofitting and alternative fuel adoption, regulations for implementing low-emission zones, and shifting freight to rail, can also drastically cut emissions.

A phased, focused strategy prioritising these actions can deliver major air-quality gains and advance India's clean transport goals.

The full report is available **here**.

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About CSTEP: The Center for Study of Science, Technology and Policy (CSTEP) is one of India's leading think tanks, involved in solving Grand Challenges that the country faces. These include Sustainable and Secure Future, India's Green Energy Transition, Clean Air for All, and Digital Transformation.

About CSTEP's Air Quality Sector: We are working with state pollution control agencies and the Central Pollution Control Board to scientifically identify the sources of pollution for effective and targeted interventions. With the use of emerging technologies such as low-cost sensors, mobile monitoring, and satellite-based monitoring of air pollution, CSTEP is looking at ways to make data on air pollution comprehensive, robust, and accessible.