

INDOOR EMISSIONS AFFECT AIR-QUALITY STANDARDS

Relevant for: Environment | Topic: Environmental Pollution - Air, Water, Soil & E-waste

Adding up: At national level, mitigating household emissions is also expected to bring large health benefits. | Photo Credit: [Hand-out](#)

India can achieve its air quality goals if it completely eliminates emissions from household sources. A recent study has pointed out that the use of firewood, kerosene and coal in the households contributed to about 40% of the PM 2.5 pollution in the Gangetic basin districts. This number varied across the country but household emissions remained one of the major culprits behind air pollution.

The analysis was carried out by researchers from the Indian Institute of Technology (IIT), Delhi in collaboration with University of California in Berkeley, Urban Emissions, Delhi and the University of Illinois, Urbana-Champaign.

The results showed that by eliminating household emissions the average outdoor air pollution levels could be reduced and brought within the national ambient air quality standards. The paper published in the *Proceedings of the National Academy of Science* also notes that “if all households transitioned to clean fuels, about 13% of premature mortality in India could be averted.” At the national scale, mitigating household emissions is also expected to bring large health benefits.

“You can’t have a clean environment when about half the houses are burning dirty fuel every day. We have realised that pollution may start in the kitchen, but it doesn’t stay there... it becomes part of the general outdoor air pollution,” said Kirk R. Smith from UC Berkeley in a release. He is one of the corresponding authors of the paper.

Using satellite data and chemical transport model simulations, the researchers pointed out that complete mitigation would bring down the country's average annual PM 2.5 air pollution to 38 microgram/cubic metre. Surprisingly, this is below India's national ambient air quality standard of 40 microgram/cubic metre and slightly above the World Health Organization (interim target 1) standards of 35 microgram/cubic metre.

“In many villages, they still use firewood for room heating and water heating. People prefer cheap wood fuel despite LPG being provided to many households,” says Sourangsu Chowdhury, a Ph.D. scholar at IIT Delhi and the first author of the paper.

Sagnik Dey from the Centre for Atmospheric Sciences, IIT Delhi, and one of the corresponding authors, warns: “In Delhi NCR, stubble burning, industrial and power plant emission, brick kilns and vehicular emissions are the major contributors. Even after mitigating household emissions, Delhi NCR would remain out of attainment. It needs more serious and stringent measures.”

“But India’s pollution problem is much bigger than often perceived. Our study has demonstrated that mitigating at a household level is the easiest and more practical way out for the government to reduce not only the household pollution but also outdoor air pollution at the national scale,” says Prof. Dey.

“We definitely need a multi-pronged approach to control emission from other major sectors like

industries, transportation, and power plants to effectively address the air pollution issue.”

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The data generated will help scientists understand how the jets of luminosity that enabled us to see the black holes actually work and behave.

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