

# Cut back on soot, methane to slow warming: study

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There are simple, inexpensive ways to cut back on two major pollutants -- soot and methane -- and taking action now could slow climate change for years to come, international scientists said Thursday.

When it comes to fending off global warming, the focus often is on harmful carbon emissions from [burning fossil fuels](#) in [coal plants](#) and car engines that linger in the atmosphere for many decades, said the study in *Science*.

But given the lack of comprehensive global action and mounting resistance from countries whose economies rely on cheap fuel, targeting two shorter-term pollutants could offer significant results over the coming decades, it said.

"Ultimately, we have to deal with CO<sub>2</sub>, but in the short term, dealing with these pollutants is more doable, and it brings fast benefits," said lead author Drew Shindell, a researcher at the NASA Goddard Institute for Space Studies and Columbia University's Earth Institute.

Soot, also known as [black carbon](#), is a byproduct of burning wood, dung, coal and other fuels. It causes lung and heart disease in people, warms the air by absorbing sun radiation, and can shift [rainfall patterns](#).

Ways to cut back include building more efficient cookstoves, installing more filters on diesel vehicles, taking the worst polluting vehicles off the road and banning the practice of burning farmland, the study said.

Methane, which is the flammable part of natural gas and also results from decay and digestion, is a [greenhouse gas](#) like CO<sub>2</sub> but is more potent.

Nations could update wastewater treatment plants, limit emissions from farm manure, drain [rice paddies](#) more often, capture gas that escapes from [coal mines](#) and oil and gas facilities and reduce leaks from long-distance pipelines.

It should cost less than \$250 to stop the emission of one metric ton of methane, but the benefits would range from \$700 to \$5,000, the article said.

Soot costs were harder to estimate but "the bulk of the measures could probably be implemented with costs substantially less than the benefits given the large valuation of the health impacts," it said.

If their 14 recommendations -- whittled from a potential field of 400 existing pollution control measures -- are followed, global warming could be reduced by about half a degree Centigrade (0.9 Fahrenheit) by 2050, the study said.

Between 700,000 and 4.7 million premature deaths could be averted and annual crop yields could rise by 30 million to 135 million metric tons.

Most of the lives saved would likely be in Bangladesh, Nepal and India where soot levels are high.

Ozone and farming benefits would likely center on hot places such as Iran, Pakistan and Jordan as well as southern Asia and the Sahel region of Africa.

The projections were made using computer models devised by US space

agency NASA and the Max Planck Institute for Meteorology in Hamburg, Germany.

"The scientific case for fast action on these so-called 'short-lived climate forcers' has been steadily built over more than a decade, and this study provides further focused and compelling analysis of the likely benefits at the national and regional level," said Achim Steiner, executive director of the Nairobi-based United Nations Environment Program.

The research team included the Stockholm Environment Institute, Harvard School of Public Health, Scripps Institute of Oceanography, the Asian Institute of Technology in Bangkok, the US Environmental Protection Agency and the Joint Research Centre of the European Commission.

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