

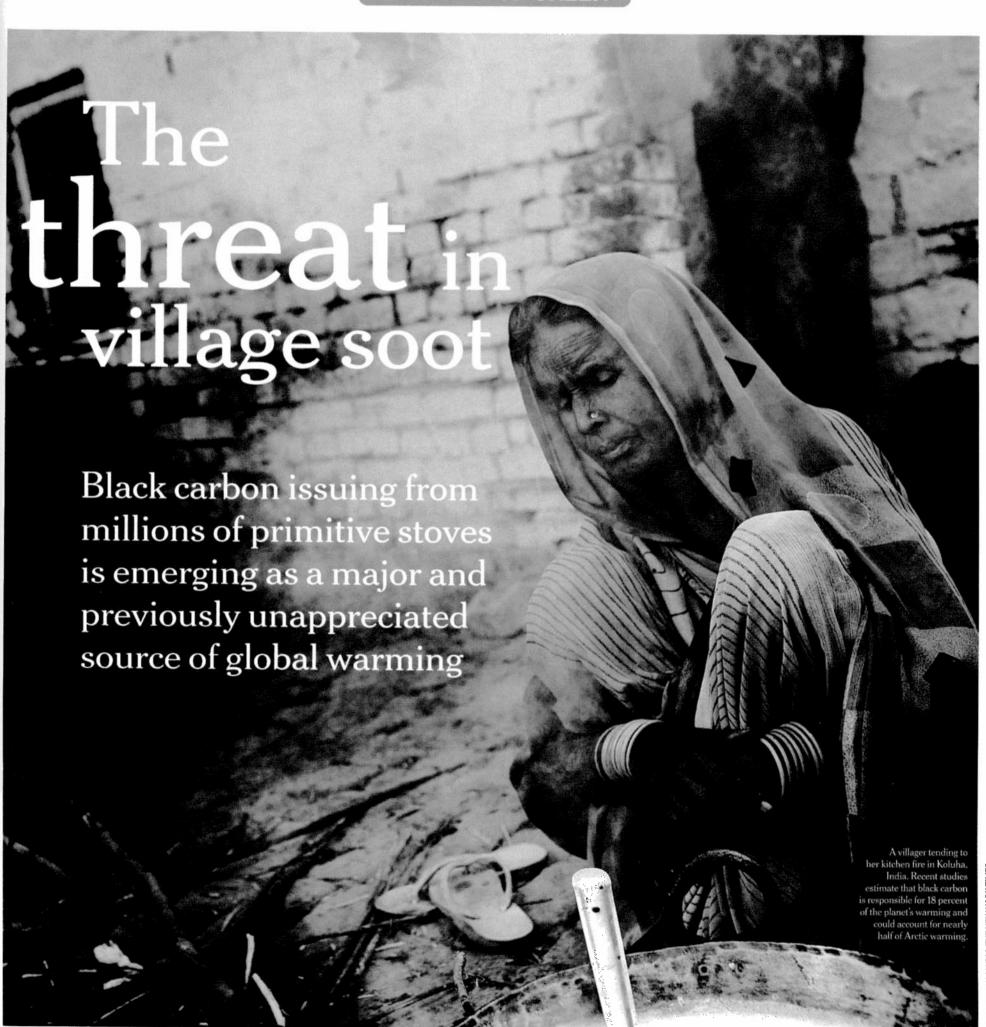
FOOD LABELS IN SWEDEN PUT CO₂ COSTS IN WRITING HOW EXPORT OF E-WASTE FOULS LIVES IN POOR NATIONS



REBOUNDING, AVIATION GOES AFTER NEW EFFICIENCIES

International Herald Tribune

BUSINESS OF GREEN



The threat in village soot

Black carbon emitted by primitive stoves emerges as a major global warming agent

KOLUHA, INDIA

BY ELISABETH ROSENTHAL

"It's hard to believe that this is what's melting the glaciers," said Veerabhadran Ramanathan, one of the world's leading climate scientists, as he weaved through a warren of mud brick huts, each containing a mud cooking stove pouring soot into the atmosphere.

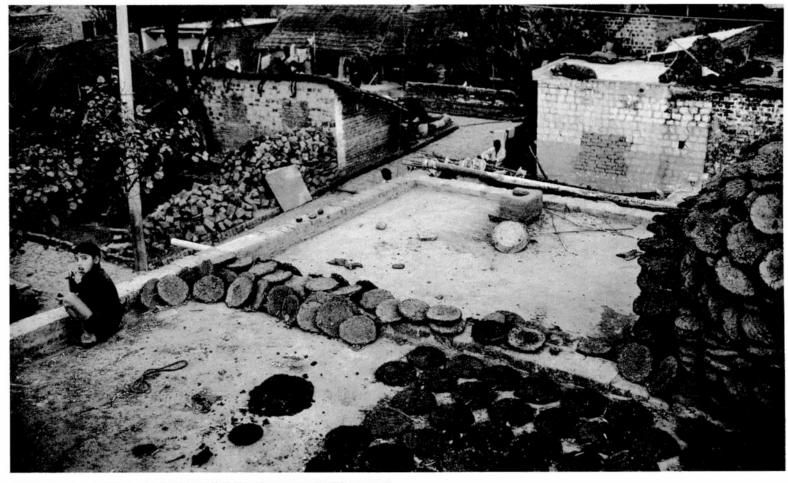
As women in ragged saris of a thousand hues bake bread and stew lentils in the early evening over fires fueled by twigs and dung, children cough and gasp on the dense smoke that fills their homes. The undersides of thatched roofs are covered with grime. At dawn, a brown cloud stretches over the landscape like a diaphanous dirty blanket.

In Koluha, with no cars and little electricity, emissions of carbon dioxide, the main heat-trapping gas linked to global warming, are near zero. But soot also known as black carbon from millions of villages like this one in developing countries, is emerging as a major and previously unappreciated source of global climate change.

While carbon dioxide might be the leading contributor to rising global temperatures, scientists say, black carbon has emerged as an important No. 2, with recent studies estimating that it is responsible for 18 percent of the planet's warming, compared with 40 percent for carbon dioxide.

One recent study estimated that black carbon could account for nearly half of Arctic warming. These revelations are so new that black carbon was not even mentioned as a warming agent in the 2007 summary report by the Intergovernmental Panel on Climate Change that pronounced the evidence for global warming to be "unequivocal."

But decreasing black carbon emissions would be a relatively inexpensive way to significantly rein in global warming - especially in the short term, climate experts say. Replacing primitive cooking stoves with existing modern versions that emit far less soot could provide a much-needed stopgap while countries struggle





A woman cooking in Koluha, India, over a fire fueled by twigs and dung. Converting to low-soot stoves would remove the warming effects of black carbon quickly, as well as bring relief to villagers suffering from air pollution.

"It is clear to any person who cares about climate change that this will have a huge impact."

VEERABHADRAN RAMANATHAN Professor of climate science, speaking of a project to give poor families new stoves

few weeks. Converting to lowsoot stoves would remove the warming effects of black carbon quickly, while shutting down a coal plant takes years to substantially reduce global carbon dioxide concentrations.

In Asia and Africa, cooking stoves produce the bulk of black carbon, although it also emanates from dirtier diesel engines and coal plants there. In the United States and Europe, black carbon emissions have already been reduced significantly by filters and scrubbers now required to fight local particulate air pollution.

Like tiny heat-absorbing black sweaters, soot particles warm the air and melt glaciers by ab-

sorbing the sun's heat when they settle on the ice. The fact that black carbon is not included in international climate efforts is "bizarre," said Mark Z. Jacobson, a professor of environmental engineering at Stanford University, but "partly reflects how new the idea is."

A boy cleaning his teeth on a rooftop in Koluha, India, piled

the village, which has no cars and little electricity, is thick

with dung cakes. The air in

with soot, and dense smoke

estimate that black carbon is

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the planet's warming.

Doctors have long railed against black carbon for its devastating health effects in poor countries. The combination of health and environmental benefits means that reducing soot provides a "very big bang for your buck," said Erika Rosenthal, a senior lawyer at Earthjustice, a nonprofit environmental law firm based in Washington.

on a project to give poor families new stoves Better still, decreasing soot could have a rapid effect. Unlike carbon dioxide, which lingers in the atmosphere for years, soot

stays in the atmosphere for just a

with the more difficult task of en-

acting programs and developing

technologies to curb carbon diox-

cares about climate change that

this will have a huge impact on

the global environment," said

Mr. Ramanathan, a professor of

climate science at the Scripps In-

stitute of Oceanography, who is

working with the Tata Energy

Research Institute in New Delhi

"It is clear to any person who

ide emissions from fossil fuels.

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