Whose earth?

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Last week's NAPSNet weekly report (17 January 2013) mentioned the disease toll of household cooking with unprocessed solid fuels in the developing countries. The estimated death toll of 4 million a year may be on the low side, considering additional burden from exposures to non-household combustion of traditional fuels, and even more toxic sources such as rubber tyres and

other wastes. (Toxic fumes from unconventional fuels such as rubber tyres and other wastes do not get measured or modeled by researchers, so those deaths extra, just ignored from statistical estimates. Science doesn't bother.)

Much of the disease burden from the solid fuel open combustion is due to small particulate matter, in turn much of it from soot, also known as black carbon. Now a new study reports that the burden of anthropogenic climate change due to black carbon is more significant than thought of before, next only to that from carbon dioxide: "global atmospheric absorption attributable to black carbon is too low in many models, and should be increased by a factor of almost three".

The overall finding is, "Thus, there is a very high probability that black carbon emissions, independent of co-emitted species, have a positive forcing and warm the climate. We estimate that black carbon, with a total climate forcing of +1.1 $W\,m^{-2}$, is the second most important human emission in terms of its climate-forcing in the present-day atmosphere; only carbon dioxide is estimated to have a greater forcing."

Carbon dioxide is hardly a pollutant in the conventional sense of direct effect on biota, and even as a warming agent, it has the lowest unit warming effect compared to other carbonaceous materials. It is generally co-emitted with other carbon species, some of which have even cooling properties (along with non-carbon emissions from the same process), so that taken processes in their entirety, some processes may have no net warming effects, and others varying from small to large.

Cleaner fuels and more efficient, higher-temperature combustion reduces emissions of gases - and black carbon - that are both damaging to the health and have a higher global warming kick. Where and how will determine for whose benefit. In the rich countries, these emissions can be reduced from regulating industrial and transportation sources. In the poor countries, via transitioning to modern forms of energy, even if based on fossil fuels or electricity (in turn based on fossil fuels).

Health sensitivity climate variability can be a gauge of development. The rich are largely "climate proof" - their nutrition, health, and security are far less climate-sensitive than are the poor, who suffer the risks of food and water insecurities, and contamination of their food/water/air/land resources, all the time. No surprise, after all; the poor live in climate-sensitive geographies and their livelihoods are more tied to immediate land and water bodies. Rainstorms and drought in the rich countries cause huge property damage and shifts in expenditure, they lead to death and disease burden in the poor countries: losses the respective groups are capable of adjusting to – property can be insured, and babies can be reproduced.

- Nikhil Desai, NAPSNet contributor
