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Human Health as a Cost Benefit

Those who argue against reducing greenhouse gas (GHG) emissions may not have taken into consideration that the resulting health benefits offset a significant portion of the costs of implementing mitigation policies. These so-called health co-benefits accrue sooner than direct benefits, yet their value is usually ignored in net estimates of mitigation policy costs.

To provide scientific support for the value of including health benefits in GHG reduction cost analyses, UCSB human ecologist [David Cleveland](#) collaborated with international and national colleagues, including lead authors from the University of Washington's Center for Health and the Global Environment, to conduct a comprehensive literature search and systematic review of health co-benefits studies.

The team evaluated studies published since 2009 that estimated the health co-benefits of reducing air pollution associated with GHG emissions from energy production and from increasing biking and walking (reducing emissions from transportation), as well as from diet change, which reduced GHG emissions mainly from reducing consumption of red meat. The purpose was to identify and recommend best practices to inform policy development. Their findings appear in the journal [Environmental Research Letters](#).

"There can be large health benefits from reducing emissions of methane and nitrous oxide by cutting down on red and processed meat, because this also reduces the risk of chronic diseases like cancer," said Cleveland, a research professor in UCSB's Environmental Studies program and the Department of Geography. "And cutting

down fossil fuel combustion not only reduces carbon dioxide, but also reduces emission of particulate matter and ozone, which also reduces disease. The main goal of our analysis is to encourage policymakers to think in broader terms when estimating the cost of mitigation programs, so that they become more fiscally attractive. To get the net costs, you have to subtract the amount saved due to health co-benefits from the total cost of climate mitigation.”

Of the 42 studies included in the analysis, most indicated significant, near-term, local health co-benefits resulting from the mitigation policies investigated. However, study diversity made it impossible to provide overall estimates of the magnitude of benefits that could be incorporated into cost-benefit analyses of specific policies or to compare the relative benefits of policy options.

Cleveland and the study’s other authors noted that increasing consistency in modeling choices — including consistent approaches to population projections, health outcomes, scenarios, time slices and discount rates, as well as closer linkages between policymakers and research scientists in posing research questions — would enhance comparability across policy choices and allow stakeholders to consider potential synergies of baskets of mitigation options.

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