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First International Science-Based Consensus on Biofuels' Environmental Impact

Ethanol production risks exacerbating climate change, air & water pollution

Ithaca, NY—Today, an international team of scientists released the first critical science-based consensus assessment of biofuels' impact on the global environment. The report is posted at http://cip.cornell.edu/biofuels/. Key report excerpts can be found at http://www.eeb.cornell.edu/howarth/SCOPEBiofuels_home.html

The assessment says that synthetic nitrogen fertilizer used in corn-ethanol production will increase emissions of nitrous oxide (N2O), a greenhouse gas 300 times more potent than carbon dioxide in its ability to warm the planet. The report predicts that nitrous oxide emissions may be four times greater than estimates made in 2007 by the Intergovernmental Panel on Climate Change (IPCC).

"The policy of using ethanol to reduce reliance on the fossil fuels that cause global warming is self-defeating because ethanol production actually increases net greenhouse gas emissions," said the Scientific Committee on Problems of the Environment (SCOPE) Biofuels Project Chair Robert W. Howarth, professor of ecology and environmental biology at Cornell University.

Biofuels production will also worsen water quality, the report finds. As conservation lands are increasingly converted to corn production for ethanol, more runoff from chemical fertilizer is ending up in U.S. lakes, streams and marine environments, robbing them of the oxygen they need to survive.

"That risks expanding these so-called 'dead zones, particularly in the Gulf of Mexico and the Chesapeake Bay," Howarth said. Biofuels may also increase water scarcity at a time of increasing drought. Roughly 45 billion cubic meters of irrigation water were used for biofuel production in 2007, or some six times more water than people drink globally.

Many assessment participants are concerned about U.S. policies pushing ethanol, not only from corn, but from cellulose as well. Several previous reports have exposed the consequences of making ethanol from corn, which now dominates production in the U.S., but have held out hope that ethanol from cellulosic materials such as wood and grasses would be more environmentally friendly.

"The SCOPE report agrees the cellulosic ethanol is better, but not better enough," Howarth said. "The efficiency of making the ethanol is simply too low, requiring too much land and too much input of material."

The report suggests that biomass that does not compete with food production can be used much more efficiently (and therefore with less environmental impact) through direct combustion to generate electricity and heat, rather than being converted to liquid fuels such as ethanol.

The assessment reflects the work of the Scientific Committee on Problems of the Environment (SCOPE) of the International Council for Science (ICSU). More than 75 scientists from 21

countries and diverse disciplines have taken part in the SCOPE Biofuels Project's "rapid assessment" of the effects of biofuels on the environment.

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