



Contact: Candice Wu: +1.202.338.1300, candicewu@igsd.org

Institute for Governance & Sustainable Development

Fast action climate mitigation measures can prevent 0.5°C of global warming and help avoid the 2°C danger limit

Measures target two air pollutants and can also save nearly five million lives a year

Washington, DC, 12 January – A new study in *Science* to be published 13 January identifies 14 fast action measures to reduce air pollutants that can deliver major benefits for climate, public health, and agriculture. The measures reduce emissions of black carbon and ground-level ozone, preventing 0.5°C of warming by 2050, half of the warming otherwise expected. The reductions in ozone are achieved by cutting its precursor methane. The 14 measures also save up to 4.7 million lives per year, while increasing crop yields up to 135 billion metric tons.

The study was conducted by an international research team led by climate expert Drew Shindell from NASA. It analyzed more than 400 emissions control measures based on proven technologies and determined that seven methane and seven black carbon measures would provide the greatest climate, health, and crop benefits. According to the study, the 14 measures can be implemented at costs that are many times less than the value they create, particularly when health benefits are taken into account.

“This great news could not come at a better time for climate protection,” said Durwood Zaelke, President of the Institute of Governance and Sustainable Development. “Because black carbon and ozone stay in the atmosphere only for a few hours to a few years, reducing these pollutants can immediately slow down climate change and some of its most harmful impacts while we continue to develop methods to reduce carbon dioxide.”

In addition to their overall climate impact the targeted measures are critical for protecting vulnerable regions of the world such as the Arctic, which is warming twice as fast as the rest of the world over the past 50 years, and the Himalayas, which are warming three times as fast. According to the Shindell team, the 14 measures could reduce warming in the Arctic by two-thirds over the next 30 years.

Although emissions of carbon dioxide are expected to control the planet’s long-term temperature, the Shindell team acknowledges that carbon dioxide emissions reductions will “hardly affect temperature before 2040.” “This makes these 14 near-term measures an essential complement to reducing carbon dioxide emissions,” said Zaelke. “We can minimize warming and its impacts in the near term with these fast action measures, as we develop ways to also reduce warming over the long term.”

Zaelke, along with Nobel Laureate Mario Molina, black carbon expert Dr. Veerabhadran Ramanathan, and others, published a paper in 2009 in the *Proceedings of the National Academy of Sciences* outlining strategies to achieve near-term climate benefits by reducing short-term climate warming agents, including black carbon and ground-level ozone. The Molina paper also included measures to phase down another powerful short-lived climate forcer, hydrofluorocarbons, or HFCs, using the Montreal Protocol treaty. “Cutting HFCs could add up to another decade to the delay in passing critical temperature limits,” said Zaelke.

Reducing emissions of these three so-called short-lived climate forcers—black carbon, methane, and HFCs—“is critical for protecting the world’s vulnerable peoples and vulnerable ecosystems,” said Zaelke. “When we talk about sustainable development,” Zaelke added, “this is precisely what we mean. These measures reduce climate change, save lives, provide access to clean energy, and improve food security all at once.” According to Zaelke, these kinds of measures are what the leaders heading to Rio for the 20th anniversary of the World Sustainable Development Summit in June should be seeking to implement immediately.

The findings of the new study build upon and are supported by earlier work by Professor Ramanathan at the Scripps Institution of Oceanography, University of California, San Diego and the United Nations Environment Programme, including a decade-long effort on Atmospheric Brown Clouds.

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Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Security. *Science* VOL 335. 13 January 2012.