



Georgetown University Law Center
Scholarship @ GEORGETOWN LAW

2009

The International Response to Climate Change: An Agenda for Global Health

Lindsay F. Wiley

Georgetown University Law Center, lfw4@law.georgetown.edu

Lawrence O. Gostin

Georgetown University Law Center, gostin@law.georgetown.edu


This paper can be downloaded free of charge from:

<https://scholarship.law.georgetown.edu/facpub/16>

302 JAMA 1218-1220 (2009)

This open-access article is brought to you by the Georgetown Law Library. Posted with permission of the author.

Follow this and additional works at: <https://scholarship.law.georgetown.edu/facpub>

 Part of the [Environmental Law Commons](#), [Health Law and Policy Commons](#), and the [International Law Commons](#)

GEORGETOWN LAW

Faculty Publications



Research Paper No. 1489524
October 2009

The International Response to Climate Change: An Agenda for Global Health

302 JAMA 1218-1220 (2009)

Lindsay F. Wiley

Professor of Law Adjunct Professor of Law
Global Health Law Program Director
Georgetown University Law Center
lfw4@law.georgetown.edu

Lawrence O. Gostin

Professor of Global Health Law
Georgetown University Law Center
gostin@law.georgetown.edu

This paper can be downloaded without charge from:
Scholarly Commons: <http://scholarship.law.georgetown.edu/facpub/16/>
SSRN: <http://ssrn.com/abstract=1489524>

Posted with permission of the author



Online article and related content
current as of September 16, 2009.

The International Response to Climate Change: An Agenda for Global Health

Lindsay F. Wiley; Lawrence O. Gostin

JAMA. 2009;302(11):1218-1220 (doi:10.1001/jama.2009.1381)

<http://jama.ama-assn.org/cgi/content/full/302/11/1218>

Correction

[Contact me if this article is corrected.](#)

Citations

[Contact me when this article is cited.](#)

Topic collections

Occupational and Environmental Medicine; Public Health; World Health
[Contact me when new articles are published in these topic areas.](#)

Subscribe

<http://jama.com/subscribe>

Email Alerts

<http://jamaarchives.com/alerts>

Permissions

permissions@ama-assn.org
<http://pubs.ama-assn.org/misc/permissions.dtl>

Reprints/E-prints

reprints@ama-assn.org

The International Response to Climate Change

An Agenda for Global Health

Lindsay F. Wiley, JD, MPH

Lawrence O. Gostin, JD

THE MOST IMPORTANT GLOBAL RESPONSE TO CLIMATE change—the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC)—is widely seen as a failure. Its greenhouse gas (GHG) emission target (a collective GHG reduction of 5.2% among industrialized countries compared with 1990 levels) was too low to make a significant difference; the treaty exempted highly populous transitional countries such as China and India; and the United States failed to ratify. President Obama has promised a dramatically different path based on steeper GHG reductions and leadership in global governance.¹

The international community is focused principally on mitigation—actions taken to reduce emissions and increase sinks of GHGs to avoid harmful climate change. The Kyoto Protocol expires in 2012, and the UNFCCC member states have begun the arduous process of negotiating a new emissions reduction regime, with a basic negotiating text now circulating (available at <http://unfccc.int/resource/docs/2009/awglca6/eng/08.pdf>) and a conference of parties scheduled to convene in Copenhagen in December 2009. Even the more ambitious mitigation targets currently under negotiation, however, will not be sufficient to avoid a profound effect on the public's health in coming decades, with the world's poorest, most vulnerable populations bearing the disproportionate burden.

The influence of historic and current emissions will be so substantial that it is imperative to reduce global emissions while at the same time preparing for the effects. Recently, the UNFCCC has begun to turn its attention to adaptation—changes to human systems to ameliorate the consequences of climate change. As transitional countries have begun to play a critical role in UNFCCC negotiations, attention is turning to an innovative new fund to provide assistance for adaptation in the world's poorest countries.² This Commentary proposes a new agenda for mitigation as well as adaptation approaches that emphasize the considerable health effects.

The Systemic Health Effects of Climate Change

Scientific consensus exists that climate change is anthropogenically forced, with effects on ecological systems and human health already in evidence.³ Systemic effects include increasingly intense and more frequent natural disasters such as tropical storms, floods, heat waves, droughts, and wildfires resulting in injury, disease, and mass displacements to unsanitary shelters.³ Although the causal relationship between climate change and particular disasters is difficult to establish, the heat wave in Europe (2003), the flooding in Mumbai (2005), and Hurricane Katrina in the United States (2005) are indicative of events likely to occur more often in the future.

Climate change creates fertile conditions for, and alters the geographic range of, disease vectors and carriers such as mosquitoes, ticks, and rodents, bringing them into greater contact with human populations naive to the diseases they carry.³ Malaria, for example, is expected to move to higher altitudes⁴ and dengue to move farther north.³ Scientists also anticipate increases in food- and water-borne illnesses, which thrive in warmer conditions.³

Climate change also affects air quality, particularly in urban environments, as increased temperatures exacerbate air pollution, especially ground-level ozone and particulate matter.³ Increasing temperatures and higher concentrations of CO₂ will also increase the concentration of allergenic aeropollens.³ The effect of climate change on air quality will add to the burden of respiratory and cardiovascular diseases, particularly among chronically ill individuals, such as those with asthma.⁵

Climate change is particularly devastating for human health because of its effects on scarcity of clean water for drinking, sanitation, and crop irrigation.⁶ Scarcity of clean water will dramatically increase diarrheal illnesses, already among the leading causes of death among children in the developing world. Ecosystem changes and water scarcity will also impair crop, livestock, and fisheries yields, leading to

Author Affiliations: O'Neill Institute for National and Global and Health Law, Georgetown University, Washington, DC (Ms Wiley and Dr Gostin).

Corresponding Author: Lawrence O. Gostin, JD, Georgetown University Law Center, 600 New Jersey Ave NW, Washington, DC 20001 (gostin@law.georgetown.edu).

food shortages with increased hunger and famines.³ Climate change is expected to play a major role in putting much of Africa under severe water stress as soon as 2020.⁶ These cataclysmic events may result in economic instability, mass migrations, civil unrest, and armed conflict in a time of competition for increasingly scarce resources.

The effects of climate change will be experienced in every region but will disproportionately burden the global poor, exacerbating global health disparities. The poor, particularly in southern regions, are more vulnerable to climate change. These disadvantaged populations already live on the edge, with extreme scarcity of clean water and nutritious food, as well as high rates of endemic and epidemic infectious disease. The world's poorest and least healthy populations also have the least capacity to ameliorate the potentially devastating effects of climate change. They have weak health systems, poor infrastructures, and less technological and manufacturing capabilities to adapt to rapidly changing weather conditions. Climate change, therefore, not only challenges the international community to find solutions to reduce the health effects but also to address the inevitable questions of global social justice.

An Agenda for Global Health

Political leaders negotiating new responses to climate change face daunting challenges such as the target for GHG reductions, whether targets should apply to developing countries, and how to finance adaptation in poor states. Beyond these challenges lies the deeper issue of how mitigation and adaptation strategies will affect the health of the world's population, particularly the global poor.

Focus Acceptable Mitigation Targets on Health Effects. The UNFCCC negotiations are focusing on the wrong effects and outcomes in attempting to negotiate acceptable climate change mitigation targets. The goal most widely accepted is an average temperature increase of 2°C above preindustrial levels.⁷ Some groups, led by small island developing states, have called for a 1.5°C target.⁷ In contrast, less ambitious emissions reduction targets advocated by some industrialized countries are likely to put the world on track for an increase of approximately 3°C to 5°C.⁸ The debate is currently driven by a focus on the sea level rise associated with each of these scenarios, which in turn is tied to the sovereignty concerns of small island states that would be decimated by a global temperature increase of even 2°C.⁷ Rather than confining climate change to a coastal issue, it would be more productive to refocus the debate on broader health effects likely to be seen under each of these scenarios. A difference of 1°C in the global average temperature increase could be the difference between a 10% and a 40% reduction in crop yields,⁹ between a 16% and a 23% increase in malaria exposure in Africa,¹⁰ or between 1 billion and 4 billion additional individuals experiencing severe water shortages.⁶

Incorporate Land-Use and Agricultural Mitigation Approaches. Currently, mitigation approaches overwhelmingly favor GHG emission reductions from the transportation, energy, and industrial sectors in industrialized countries. This largely ignores the huge mitigation potential of more sustainable agricultural and land-use practices in developing and rapidly industrializing countries, which offers a unique opportunity to realize cobenefits for health. Avoiding deforestation and degradation¹¹ and introducing sustainable agricultural practices¹² increase resilience to the health effects of climate change and provide more immediate cobenefits for health by protecting populations from extreme weather events, reducing risk of infectious disease, and improving air, soil, and water quality. Because these sectors are low-cost reducers of atmospheric GHG concentration, incorporating them into a cap and trade regime may effectively subsidize more sustainable land use in the developing world.¹¹ At a minimum, expansion of the UNFCCC's Clean Development Mechanism would allow developing countries to benefit from offsetting GHG emissions in industrialized countries with cost-effective, sustainable land-use and agriculture practices.

Fully Fund Adaptation Projects as a Global Priority. The Adaptation Fund recently established by the UNFCCC could be groundbreaking in the level of assistance it offers to developing countries for climate change adaptation. The fund's financing mechanism relies on a 2% levy on Clean Development Mechanism projects undertaken in developing countries by industrialized countries seeking to offset their own emissions, rather than on voluntary contributions by donor countries.¹³ Financing the fund could be expanded as part of future negotiations. Wealthy countries, however, are fighting expansion, arguing that any adaptation funding should be part of Official Development Assistance commitments, which historically have been woefully insufficient to meet health needs in poor countries.¹² Fully funding climate change adaptation would allow for exactly the kind of projects global health advocates have been urging for decades—capacity for disease surveillance and response, sanitation, food and water security, and capabilities for natural disaster preparedness and response.

The Way Forward

Health concerns should play a crucial role in the resolution of these key debates in UNFCCC negotiations, but it is by no means certain that they will. Environmental governance structures have largely failed to include health advocates and policymakers in a coordinated response to climate change.¹⁴ Although global health advocates understand the importance of climate change as one among many transboundary health concerns, they have not delved into the potential of environmental policy as a potent tool for promoting health. The relationship between climate change and global health is unmistakable. This is a critical time for public health advocates to demand that political leaders safe-

guard the health of the world's population, with particular attention to the survival needs of the most disadvantaged.¹⁵

Financial Disclosures: None reported.

REFERENCES

1. Max A. Obama's climate change team debuts at UN talks. *Huffington Post* Web site. March 29, 2009. http://www.huffingtonpost.com/2009/03/29/obamas-climate-change-tea_n_180441.html. Accessed April 23, 2009.
2. Climate talks need massive political support [press release]. Germanwatch Web site. April 8, 2009. <http://www.germanwatch.org/presse/2009-04-08e.htm>. Accessed April 23, 2009.
3. Confalonieri U, Menne B, Akhtar R, et al. Human health. In: Parry ML, Canziani OF, Palutikof JP, van der Linden PH, Hanson CE, eds. *Climate Change 2007: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge University Press; 2007:291-431.
4. Pascual M, Ahumada JA, Chaves LF, Rodo X, Bouma M. Malaria resurgence in the East African highlands: temperature trends revisited. *Proc Natl Acad Sci U S A*. 2006;103(15):5829-5834.
5. Beggs PJ, Bambrick HJ. Is the global rise of asthma an early impact of anthropogenic climate change? *Environ Health Perspect*. 2005;113(8):915-919.
6. Bates BC, Kundzewicz ZW, Wu S, Palutikof JP, eds. 2008: *Climate Change and Water*. Geneva, Switzerland: Intergovernmental Panel on Climate Change Secretariat; 2008. .
7. Bals C. Between Poznan and Copenhagen: the climate train in the "valley of death": results of the U.N. Climate Summit in Poland, 1-12 December, 2008. Germanwatch Web site. January 21, 2009. <http://www.germanwatch.org/klima/c14rese.pdf>. Accessed April 23, 2009.
8. Wood P. What implications does Obama's victory have for climate change? Climate Dilemma Web site. November 11, 2008. <http://climatedilemma.com/2008/11/11/obama-climate-change/>. Accessed April 23, 2009.
9. Brown LR. *Plan B 3.0*. New York, NY: WW Norton & Co; 2008.
10. Tanser FC, Sharp B, le Sueur D. Potential effect of climate change on malaria transmission in Africa. *Lancet*. 2003;362(9398):1792-1798.
11. Takacs D. Carbon into gold: forest carbon offsets, climate change adaptation, and international law. *W-NW J Environ Law Policy/Hastings Int Comp Law Rev*. 2009;15:39-87.
12. United Nations Food and Agriculture Organization. Enabling agriculture to contribute to climate change mitigation. United Nations Framework Convention on Climate Change Web site. <http://unfccc.int/resource/docs/2008/smsn/igo/036.pdf>. Accessed April 23, 2009.
13. Harmeling S, Bals C, Seltz K, Hirsch T. Making the Adaptation Fund work for the most vulnerable people. Germanwatch Web site. December 2008. <http://www.germanwatch.org/klima/adfund08.pdf>. Accessed April 23, 2009.
14. Neira M, Campbell-Lendrum D. Saving lives, saving money. *World Conserv*. 2009;1:24-26.
15. Gostin LO. Why rich countries should care about the world's least healthy people. *JAMA*. 2007;298(1):89-92.