

MEMORANDUM

To: US Climate Change Science Program

From: John Balbus, MD, MPH, Environmental Defense Fund
on behalf of organizational and individual signers

Date: January 26, 2009

Re: Comments on Strengthening Public Health Research and Science-based Practice
within the US Climate Change Science Program

The undersigned organizations and individuals appreciate this opportunity to provide comments on the Climate Change Science Program (CCSP) as the Program undergoes a process of self-evaluation, restructuring and reinvigoration. There is an urgent need for a thoughtful restructuring of the US CCSP. The Program provides essential knowledge and services that can enable the country to avoid, prepare for and respond to human health and other societal threats from global climate change. Advances in scientific understanding of the basic processes of climate change and the increasing severity of current impacts require that the focus and emphasis of the CCSP be updated as early in the new administration as possible to reflect new priorities. Recent studies and reports, such as the 2007 National Academy of Sciences (NAS) report “Evaluating Progress of the U.S. Climate Change Science Program: Methods and Preliminary Results”¹ have pointed out the relative under-emphasis within the CCSP on human health and human dimensions in general and recommended immediate actions to address the important and growing gaps in knowledge and practice. Our recommendations are intended to provide specific ways in which the CCSP can implement the NAS recommendations to better serve the public and protect the health of all Americans.

Our recommendations can be summarized as follows:

1. Explicitly state that one of the core goals of CCSP is the prevention of harm to human health due to climate change
2. Describe baseline conditions with respect to climate-sensitive risk factors, health outcomes, and current and planned public health interventions
3. Prioritize understanding and ameliorating the contribution of health disparities among subpopulations in the US to climate change vulnerability
4. Develop and promote the implementation of standard methods for national, regional, and local health impact assessments for climate change
5. Develop a research program and set of standard methods for assessing the health impacts (both co-benefits and unintended harms) of interventions in energy,

- transportation, agriculture, and housing intended to mitigate or adapt to climate change
6. Improve training of federal, state, and local health department personnel in the human health risks of and public health responses to climate change

An explanation of each recommendation appears below.

1. Explicitly state that one of the core goals of CCSP is the prevention of harm to human health due to climate change

Recent assessments concluded that global climate change presents real risks to human health, and that the U.S. population will not be spared from health impacts of recent and projected climate change^{2,3}. Synthesis and Assessment Product (SAP) 4.6 reviewed the scientific literature published since the first U.S. National Assessment of the Potential Health Impacts of Climate Variability and Change⁴, and concluded that climate change poses a risk for U.S. populations, with uncertainties limiting the ability to quantify the projected number of increased injuries, illnesses, and deaths attributable to climate change⁵. The extent of these uncertainties can be reduced with additional research.

Future climate change could exacerbate a number of current health problems, including heat-related mortality, diarrheal diseases, and respiratory and cardiovascular diseases related to elevated concentrations of common air pollutants and/or aeroallergens. Demographic trends, such as a larger and older U.S. population, will increase overall vulnerability to these health risks; local geophysical and socioeconomic factors will influence vulnerability at the local level. In addition, the U.S. population may be at risk from climate-related diseases and disasters that occur outside U.S. borders, with travelers and refugees importing diseases not currently present. The unprecedented nature of climate change also may bring unanticipated consequences for public health.

These conclusions support the need to elevate the importance of addressing climate change health risks within the revised CCSP goals. In keeping with the original intent of the Global Change Research Act, CCSP research on climate change health risks should emphasize international cooperation and scientific support for developing countries in their efforts to reduce health threats from climate change within their borders. Special attention should be paid to elucidating the importance of individual risk factors, including age (children and the elderly are more vulnerable to many climate-sensitive adverse health effects), underlying medical conditions, and pregnancy. In addition, the role of community-level risk factors, such as poverty and racial discrimination, is critical and discussed further in the third recommendation.

2. Describe baseline conditions with respect to climate-sensitive risk factors, health outcomes, and current and planned public health interventions

The extent of health impacts experienced with climate change will depend on the geographical location, rate and degree of change, underlying population vulnerabilities,

and the programs and measures implemented to reduce current and projected impacts. Limited information is available to describe current exposure-response relationships for many climate-sensitive health outcomes in the U.S. or to determine the degree to which current programs and measures could be effective in addressing changes in the incidence, severity, and/or geographic range of these health outcomes. Robust environmental monitoring and health surveillance data from across the U.S. are essential to analyze and track climate-sensitive health problems, such as asthma, infectious gastroenteritis, and vector-borne diseases. And yet the monitoring and surveillance functions of public health have been eroded by budget cuts at both the state and national levels. These programs should be restored and reinvigorated in coordination with the revised emphasis on human health in the CCSP, and a national survey of existing climate-relevant baseline health data and needs assessment for future surveillance programs should be conducted. High quality monitoring and surveillance data will improve projections of future health impacts of climate change and assist in public health protection.

3. Prioritize understanding and ameliorating the contribution of health disparities among subpopulations in the US to climate change vulnerability

Assessing vulnerability for climate change related health effects entails combining epidemiologic information on the specific health effects anticipated in a given region, consideration of the unique geography and ecosystems of a region that will mediate climate-related health effects, and an assessment of the resilience or adaptive capacity of specific subpopulations in a given region. This last factor is highly dependent on the current socioeconomic and health status of a given community as well as the availability of health care services. While there are studies that provide assessments of population and individual risk factors for specific health outcomes, very few associate these health risk factors with local socioeconomic, geographic, and climate change-related risk factors. To date, these assessments have been conducted in a fairly qualitative manner, relying on analogy and fragmented data sources. The 2008 National Research Council (NRC) report “Science and Decisions: Advancing Risk Assessment”⁶ discusses and makes recommendations for quantitative assessments that incorporate underlying population vulnerabilities and consideration of synergistic risks. Integrated modeling and intensified research on climate-related health effects that focus on the interactions between baseline population health status and climate change-related health threats will facilitate the development of more useful quantitative indices for vulnerability for public health planning.

4. Develop standard methods for regional, state, and local health impact assessments for climate change

CCSP should develop a standard guidance document for state and local public health departments to assess impacts and effective and timely responses, using standard assumptions and public health indicators. The method would be used to produce, evaluate, and improve models, projections, and decision-making tools. The current

practice of using multiple units (e.g., use of different temperature scales), time frames, and baseline measures (e.g., underlying health status) among different assessments prevents easy comparisons. These varying approaches must be harmonized and standardized for effective public health measures to be developed and to facilitate exchange of information among communities and regions.

5. Prioritize studying the health impacts of climate mitigation and adaptation interventions; develop a research program and set of standard methods for assessing the health impacts (both co-benefits and unintended harms) of interventions in energy, transportation, agriculture, and housing intended to mitigate or adapt to climate change

Improved understanding of health risks from climate change is relevant to two important policy objectives: (i) for more fully-informed decision-making about the mitigation of climate change, and (ii) as an information base for developing and deploying adaptive strategies to lessen health risks that are likely to occur due to past and current greenhouse gas emissions. Energy production and use, including for transport, are among the major determinants of greenhouse gas emissions. They are also associated with greater environmentally mediated premature morbidity and mortality than any other sector, primarily through exposure to harmful indoor and outdoor air pollutants. In addition, patterns of energy use and transportation may also contribute to human morbidity and mortality through accidents (both occupational and non-occupational) and through effects on physical activity. The disease burden affected to some degree by decisions in the energy and transport sectors is very large.

Decisions made by water and agriculture agencies, including those made in response to climate change, also have the capacity to increase or decrease risks from a range of infectious diseases, undernutrition, and other health risks. Climate change (including impacts on sea level rise, temperature, rainfall, run-off from snowfall, and storm intensity) is one of multiple stresses on the quantity and quality of freshwater sources. Adaptation steps implemented for the water sector, including infrastructure development, irrigation, and use of wastewater, are likely to change the pattern of water-related risks to health, from ability to ensure necessary household water requirements, to risks of chemical and microbiological contamination, to the abundance of disease vectors.

6. Improve training of federal, state, and local health department personnel in the human health risks of and public health responses to climate change

State and local public health departments are the “first line of defense” in our public health system. They are responsible for identifying cases of infectious diseases before an epidemic develops, ensuring that water and food are safe and free of pathogens and other contaminants, and protecting susceptible populations, such as persons with asthma and other chronic respiratory diseases, from ill effects of elevated concentrations of air pollutants and aeroallergens. Unfortunately, the current public health system is greatly

challenged to keep up with existing levels of health threats, including climate-sensitive ones.

Recent surveys^{7,8} revealed concerns about availability of expertise on climate change health impacts within the public health community and the level of planning and capacity building initiated to respond to this shortfall. Additional training and capacity building are necessary to prepare public health professionals to deal with the urgent threats of climate change. This training needs to include approaches to identifying climate-related novel health problems at an early stage, quantifying possible future health risks at local and regional scales, and identifying and deploying effective adaptation and mitigation measures to address those risks.

ORGANIZATIONAL SIGNERS

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American Nurses Association
American Public Health Association
Association of State and Territorial Health Officials
Children's Environmental Health Network
Environmental Defense Fund
Medical Care Section, American Public Health Association
National Association of County and City Health Officials
Natural Resources Defense Council
Physicians for Social Responsibility

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¹ National Research Council. Committee on Strategic Advice on the U.S. Climate Change Science Program, National Research Council 2007. Evaluating Progress of the U.S. Climate Change Science Program: Methods and Preliminary Results. National Academies Press. Available at http://www.nap.edu/catalog.php?record_id=11934. Accessed December 28, 2008.

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³ Ebi KL, Balbus J, Kinney PL, Lipp E, Mills D, O'Neill MS, Wilson M. 2008. Effects of global change on human health. In: Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. Gamble JL (Ed.). U.S. Environmental Protection Agency, Washington, DC, pp 2-1 to 2-78.

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5 Supra. Reference 2

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