



PROTECTING HEALTH FROM CLIMATE CHANGE

Global research priorities



World Health
Organization



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Assessment of the health impacts of potential adaptation and mitigation measures in other sectors: Kristie Ebi and Jonathan Balbus

Development of decision-support and other tools, such as surveillance and monitoring, for assessing vulnerability and health impacts and targeting measures appropriately: Sari Kovats and Zaid Chalabi

Assessment of the likely financial costs necessary for health protection from climate change: Anil Markandya and Aline Chiabai

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EXECUTIVE SUMMARY

Climate change is now recognized as one of the defining challenges of the 21st century, and protecting health from its impacts is an emerging priority for the public health community. Further, the potential range and magnitude of associated health risks should be central to the rationale for actions to mitigate the occurrence of climate change. Research in this field is increasing, but it is still comparatively weak in relation to the complexity of the issue and the magnitude of the health risks that may arise from inadequate or inappropriate responses. In addition, to date, research has mainly concentrated on the identification, characterization and quantification of the linkages between climate and health, with less focus on applied research to lessen associated health risks.

National governments are now committing to undertake evidence-based actions to protect health from climate change. In May 2008, the 193 Member States that constitute the World Health Assembly (WHA) passed a resolution calling for a stronger commitment from Member States and the World Health Organization (WHO) to protect health from climate change. In particular, the resolution called on WHO to work with other agencies to identify research requirements and pilot projects that should be supported by the international community on a series of practical themes, with the aim of designing effective actions.

In response to the WHA resolution, WHO convened a global consultation of public health researchers, practitioners, representatives of the United Nations (UN) and other agencies, and donors. This culminated in a meeting attended by over 70 leading professionals in this field. Their insights have contributed to the development of a series of recommendations for priority areas of research and risk management, and guidance on how to support further progress on this issue.

Research on climate change and health must be placed more firmly within the overall context of improving global health, and health equity, rather than being considered as a stand-alone issue. Most of the health impacts of climate change arise as a result of the extension or amplification of existing health hazards. Related research should have a greater focus on operational decisions, linking decreasing the burden of climate-sensitive diseases and managing weather-related health risks to the long-term aim of ensuring that populations are resilient to climate change. This should include making use of the huge research capacity that is already addressing relevant issues, such as vector control or air pollution.

Improved risk assessment is necessary to inform decision-makers about the broad range of health impacts due to climate change at the international, national and local levels. Research in this field should build stronger bridges between assessment of the immediate health risks of climate variability and the effects of long-term climate change, in the context of other relevant trends, such as socioeconomic development and urbanization. This should include improved estimation of the contribution of both meteorological hazards, and climate change, to the burden of mortality and morbidity, with greater attention to previously

neglected mechanisms, such as the diverse effects of population displacement, or the degradation of water supplies and other ecosystem services. It should further use disaggregated data to identify and describe the health risks to particularly vulnerable population groups, especially those exposed to multiple hazards.

There is a need for a comprehensive evaluation of the effectiveness, and cost-effectiveness, of interventions aiming to protect health from climate-related hazards. As climate change will exacerbate many existing health problems, expanding the coverage of proven interventions for those problems should both improve health now and reduce the impact of future climate change. However, there have been few systematic evaluations of environmental health interventions, and fewer still that consider whether they will be compromised by climate change. It is recommended that a programme of systematic reviews of the cost-effectiveness of interventions to address key climate-sensitive health risks, over a range of contexts, be carried out. Meanwhile, tools for cost-effectiveness analyses that take into account the uncertainty and very long timeframes that characterize climate change should be developed, and best practices at local and national levels identified.

Research on the health effects of mitigation and adaptation decisions in other sectors can help to avoid harm, and identify important opportunities for health promotion. Around the world, climate change is forcing societies to consider fundamental changes in how they supply energy, transport, housing, food and water. Applied research can help maximize the health co-benefits of greenhouse gas mitigation, and avoid health-damaging “maladaptations” to climate change. This should include definition of best practice for assessing health in mitigation policies, from “macro” level policies (e.g. carbon pricing), to local and sector-specific decisions, such as home insulation schemes. It is recommended that sectors such as household energy use, electricity production and transport should be a particular priority for mitigation studies, and that such studies should expand to include a wider range of pathways to health impacts. There is a particular requirement for studies of the health effects of adaptation policies in the agriculture and water sectors, such as increasing use of wastewater. These sectoral studies can be complemented by settings-based approaches that provide a more holistic assessment of the effect of, for example, urban development plans on all aspects of health and well-being.

Applied research on surveillance and other decision-support tools is necessary to enhance operational effectiveness and early warning. WHO has published general guidance for vulnerability assessment and adaptation planning, and there is a wide range of decision-support tools for identifying and prioritizing risks. Existing disease surveillance systems and operational procedures already cover most climate-sensitive diseases, and there is great interest in using environmental information to enhance early warning for health threats. The main recommendations are for applied research to improve the application of these tools. This should include pilot testing of existing guidance during climate change adaptation planning, such as preparation of National Adaptation Programmes of Action. Similarly, there is currently a lack of field-testing of the usefulness of weather and climate predictions, as measured by improvements in health or more efficient use of resources. Other research is needed to improve understanding of the kinds of information, dissemination methods, and participatory approaches that are most effective in engaging decision-makers, including the general population.



Improved economic assessments of the costs associated with the health impacts of climate change can help support investment in health adaptation programmes, and support mitigation policies that enhance health.

The few relevant studies suggest that unmitigated climate change, in the coming several decades, will significantly increase financial costs to health services, for example through increased demands for prevention and treatment of diarrhoea, malaria and malnutrition. Similarly, economic evaluations of mitigation policies suggest that these could bring major health co-benefits, covering much of the cost of the initial investment. While critically important, this field is in its infancy. There is a need for much greater standardization of methods, particularly on how best to represent uncertainty, the relative value of future benefits (e.g. discounting), and the achievement of equity. These methods should be applied to assess the health costs of inaction on climate change, the costs and benefits of investing in health adaptation, at the global, regional or local level, as well as of mitigation actions impacting on health. A wider range of health impact pathways than those considered so far should be taken into account.

The necessary research effort will not occur spontaneously: It requires a sustained process to update and adapt priorities and mobilize resources, as well as recognition that the strengthening of applied interdisciplinary research to protect health is an essential investment in responding to the challenge of climate change.

An iterative process of consultation between researchers and decision-makers (particularly those from the most vulnerable populations), is needed to update and adapt research priorities. This may be best accomplished not by a single formal process, but by a continuous collaboration and exchange of information among actors through a variety of means (i.e. consultations on specific issues or in different geographical areas). The establishment of a virtual forum, which would also highlight opportunities for research funding and training, and for collaboration on research projects, should be considered. High priority should be given to building capacity in this field, with a focus on developing countries that are most vulnerable to the health effects of climate change and have the weakest research capacity. This will require additional funding, although the necessary investment is likely to be very small compared to current investment in climate research, marginal compared to the economic implications of adaptation and mitigation decisions, and trivial compared to the potential health consequences of either unmanaged climate change, or poorly designed climate policies.

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