



Connecting Climate Change and Health

Climate change impacts human health. This challenges sustainable development and threatens vulnerable populations. Adaptation can protect human health and mitigation can improve it.



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“Climate change, health, and international development are inseparable.”

—Jim Yong Kim,
President, World Bank Group
WHO Conference on Health and Climate
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The Problem

Climate change makes finding solutions to almost all development challenges more complicated and threatens to erase the many gains made over decades of development. Among the most serious impacts will be those to public health: greater rates of heat stress as heat waves become more common; malnutrition as extreme events—like coastal flooding and drought—affect food production; and water and vector borne diseases—with diarrheal illnesses and tropical fevers spreading. Worse still, these impacts will be greatest in regions where the population is most dense, most vulnerable, and least equipped to adapt. Poor and disenfranchised groups, women, and children, are most at risk (Smith et al., 2014; World Bank, 2012, 2013).

As the relationships between climate change and health become more apparent, the need for resilient and robust development solutions is further underscored.

Relevance to the World Bank

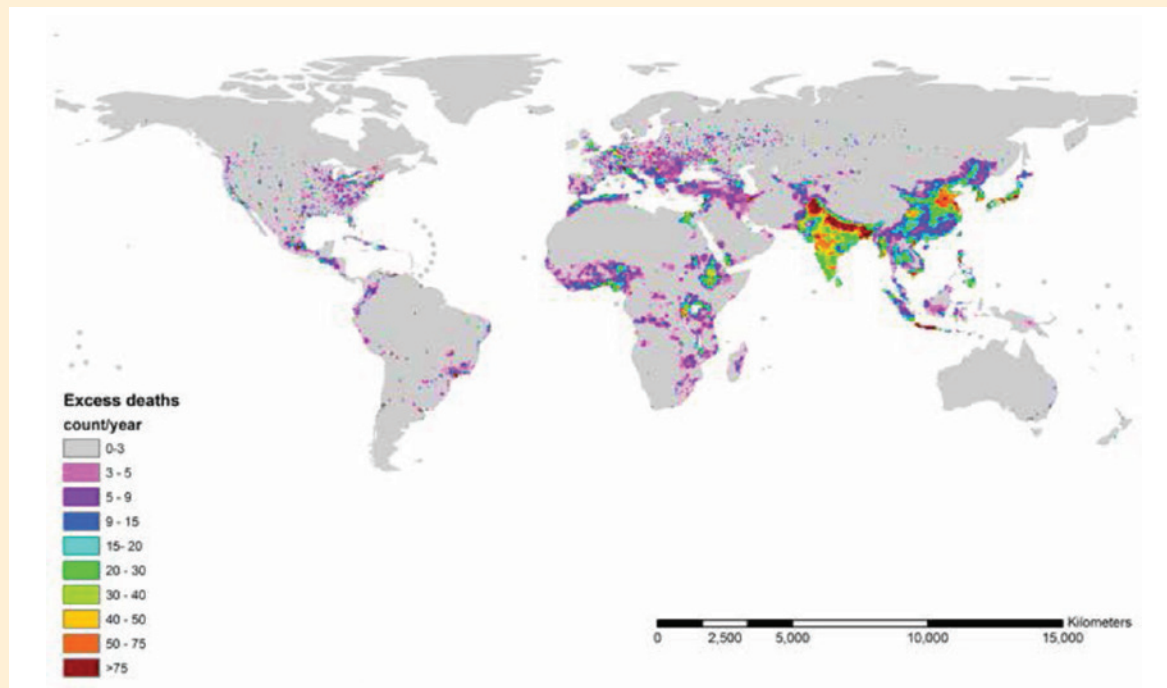
In April 2013, the World Bank adopted a set of ‘twin goals’ to harness the institution’s resources behind two objectives: eliminating extreme poverty by 2030, and boosting shared prosperity, measured as the income of the bottom 40 percent in any country.

Human health is essential to achieving these goals. Yet mounting evidence from the scientific and medical communities shows that climate change poses threats to human health that are complex, immediate, and large-scale. Few countries are left unaffected.

All developing regions are vulnerable to economic and social damages from climate change (WDR 2010), though the health effects are likely to vary with country context and geography. Inhabitants of coastal communities and low-lying islands are sensitive to flooding, contamination of reservoirs, and soil salination—affecting infectious disease and nutrition (Nunn, 2009). Some mountain communities are susceptible to glacial lake outburst flooding, which can result in destruction of crops and injuries. And people in heat-prone regions and in cities that act as urban heat islands are sensitive to thermal stress (Kjellstrom et al., 2013, Stone et al., 2010). Rural and pastoral populations across the world are highly sensitive to rainfall and drought, impacting nutrition and disease (Acosta-Michlik et al., 2008).

Given the prospect of a sharply altered global burden of disease and health conditions, together with indirect effects mediated through nutrition and environmental factors, the World Bank needs to respond. Our clients’ pathways to ending poverty and building shared prosperity face the prospect of major, unanticipated setbacks if this challenge is not understood and addressed.

Figure 1. Estimated annual counts of heat-related deaths in people aged 65 and older in 2050



Source: Qualitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. (WHO, 2014).

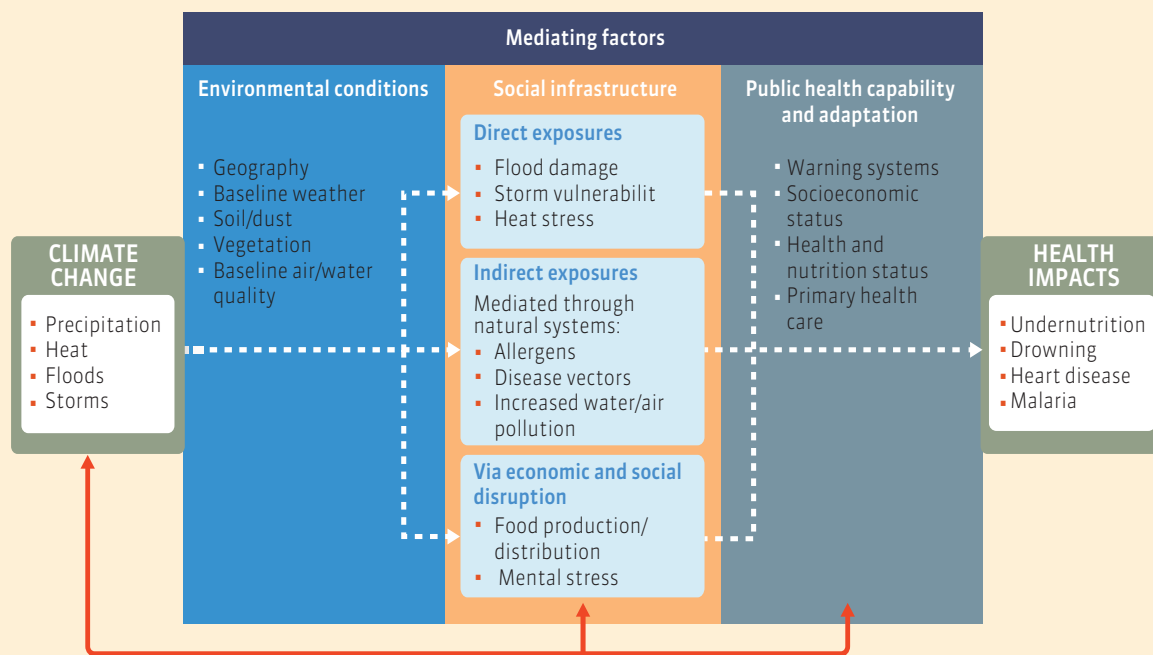
World Bank's Response

According to the International Panel on Climate Change (IPCC) Fifth Assessment Report, it is likely that climate change has already negatively impacted health, even though present world-wide burden of ill-health from climate change is not well quantified. Moving into a future with continued climate change, the level of confidence of adverse climate-health

impacts is much stronger. Figure 2 shows the channels linking climate change and health impacts: directly, indirectly, and through economic and social disruptions. This framework provides a useful starting point to think about the relevance of climate and health linkages to World Bank operations.

Addressing climate change is a corporate priority of the World Bank. And addressing climate change and health together is increasingly common. As

Figure 2. Diagram showing three exposure pathways by which climate change affects health



Source: IPCC Fifth Assessment Report (Smith et al. 2014).

early as 1994, linkages between climate change and health have been recognized within the institution. Since then, the World Bank has scaled its climate and health operations, first with reports, discussion papers and briefings, and more recently, providing pathways for direct resource for country and regional level climate and health investment across multiple sectors, such as agriculture, environment, and rural development. Topics have included adaptation, risk

management, health impact pathways, exploration of specific causal links between weather variables and health, and economic analyses of the impact of climate change on health outcomes.

The **Turn Down the Heat** series (World Bank, 2012, 2013) has been instrumental in clarifying the relationship of climate change and development, with featured sections dedicated to health impacts. Volume 1 describes the influence of extreme weather



and changes on temperature, precipitation and humidity on health. Infectious disease transmission will change in range and incidence for certain vector borne (e.g. malaria, dengue), and water borne diseases (e.g. cholera). Incidence of respiratory disease will be affected by extreme temperatures that exacerbate allergens and air pollution. Mental illness is compounded by exposure to extreme weather events and the accompanying social stresses. Climate disasters and extreme events also result in injuries directly. If warming were to progress towards a 4°C scenario, stresses on human health would threaten to overburden healthcare systems to a point where adaptation is no longer possible.

In Volume 2 (World Bank, 2013), the health impacts of climate change are highlighted with a focus on sub-Saharan Africa, South Asia and Southeast

Asia. With warming of 1.2–1.9°C by 2050, research suggests that the incidence of undernourishment in sub-Saharan Africa would increase by 25–90 percent compared with the present. In Southeast Asia, the effects of heat extremes are anticipated to be particularly dire in urban areas due to the urban heat island effect resulting in high mortality and morbidity rates, especially among the urban poor. A heavy toll on human health is expected in South Asia due to drought, heat extremes and food security impacts.

Volume 3 (World Bank, 2014a) is currently investigating other regional impacts. The Middle East and North Africa regions, for example, are experiencing a resurgence of vector and water-borne diseases, and moving into the future, will be increasingly susceptible to thermal stress. Similar ailments are projected to increase in Latin America and the Caribbean, with additional disadvantages of health impacts from flooding and glacial lake outbursts in the Andean region. In Europe and Central Asia, other diseases are expected to expand in range, such as those transmitted by ticks, as well as previously non-endemic tropical diseases that are anticipated to spread north.

Neglecting any of these climate-health risks can fundamentally undermine the work of the World Bank as it strives toward better development outcomes. Building this knowledge into our investment projects and country assistance strategies ensures these efforts are not lost.

For example the World Bank has started screening for climate and disaster risks for projects across sectors, and at the country level. A set of tools has been developed to support screening at the early stages of project and strategy conceptualization and help countries identify potential risks and develop the need for further assessment/management. Health is one of the focal points of this work—as it is both climate-associated health impacts that will need to be addressed, as well as investments in the health sector that will be subject to broader climatic risks, such as the impact of extreme weather events on infrastructure and human resource. Another tool-kit is being developed to assist investment teams in the health sector to identify and address multisectoral determinants of disease or injuries, and thus maximize the efficiency of investments for health outcomes. Within the agriculture practice, various approaches to reducing climate-sensitive disease risks to livestock (and humans) have been identified and are being piloted in regional investment. In the energy sector, health co-benefits of clean energy that minimizes pollution risk is being explored—supported by work within the Climate Change Group and at the International Monetary Fund (IMF).

The World Bank is currently working with the government of **Mozambique** on a series of climate change related budget support operations, which include a climate and health component (supported by a grant from the Nordic Development Fund) driven by the country's increasing vulnerability to

extreme weather events. The program will comprise a multi-sector approach to mainstreaming climate change considerations across government, delivering better health outcomes.

Other substantive analytical products that have laid an important foundation for action include:

- In 2010, the ***Cost of adapting to climate change for human health in developing countries*** (WB, 2010a) examined economic costs. Incorporating burden of disease information from the World Health Organization (WHO), the study focused on malaria, a climate-sensitive disease on which robust data is available. Results suggested that adapting to malaria will cost \$2 billion annually for the period 2010–2050, will decline over time and be variable by region—with sub-Saharan Africa facing disproportionately large costs.



- Country-specific research exploring the links between weather shocks on childhood development in Mexico, Philippines and Nigeria was released in 2011 and 2012 (*Climate variability and child height in rural Mexico, In-utero rainfall variability and birth-weight in the rural Philippines, Weather and child health in rural Nigeria*). The research demonstrated the important linkages between weather extremes, diminished childhood height, and lifetime earnings potential.
- Guidance to help practitioners reduce the risks of key climate-sensitive infectious diseases by strengthening risk management systems for disease outbreaks is provided in *Reducing Climate-Sensitive Disease Risks* (World Bank, 2014b). The report recommends a portfolio of interventions to combat climate sensitive diseases, such as

the establishment of surveillance systems, the development of region- and nation-specific disease outlooks, the creation of climate-sensitive disease risk maps, and the construction and implementation of early warning advisory systems.

- **Climate-Smart Development**, a joint report of the ClimateWorks Foundation and the World Bank (Climate Works, 2014), examines public health benefits of reduced emissions of climate pollutants (including Short-Lived Climate Pollutants – SLCPs). Climate-smart projects in Brazil, China, India, and Mexico demonstrate that mitigation actions in key sectors could avoid more than 1 million premature deaths. SLCPs, namely black carbon and methane are singled out for having near-term health and agricultural implications. The report makes the case that delaying mitigation action can have a significant opportunity cost for economies (more than \$2 trillion annually in 2030), including impacts on health (via degraded air quality) and climate.



Building partnership and momentum for climate and health action

Action by international organizations, medical researchers, clinicians, foundations, private firms, and central and subnational governments—some of which have been active for decades—has built new momentum to address this issue. Indeed, the number of actors

that are pressing for a stronger international response has increased, as has the scale and depth of activities:

- The Global Climate and Health Alliance hosted the second annual Climate and Health Summit on the sidelines of COP20 in Lima, Peru in December 2014. Following this and advocacy from WHO and other civil society organizations, health co-benefits of mitigation were included for the first time in a conference outcome document, “Lima Call for Climate Action.”
- Building upon the World Health Assembly (WHA) resolution on climate and health, the WHO convened a first-ever Climate and Health summit in August 2014. Attended by over 400 from 96 UN member states, including 25 ministers and 4 heads of UN agencies (WHO, United Nations Framework Convention on Climate Change, World Meteorological Organization, International Strategy for Disaster Risk Reduction), the event was successful in cultivating a collective movement on climate and health, which was carried forward to the UN Conference and Peru through alliances with civil society, government, and international organizations.
- Regional organizations, including the African Union and European Union, have emphasized upon collective action to address health impacts of climate change. In 2013, the EU Council resolved to scale up an integrated approach to climate adaptation by integrating health responses in



- the EU’s financial framework for 2014–2020.
- Health effects of climate change have emerged onto the UN Security Council agenda in the past 10 years, given concern that large-scale displacement and health effects risk fomenting conflict and instability over a medium-term planning horizon.
- Private firms that have factored shifting epidemiology and unmet investment needs into their business planning include GE (infrastructure and medical equipment), Swiss Re (insurance) and GlaxoSmithKline (pharmaceuticals). With billions invested in the developing world, private sector companies are crucial to this dialogue and are well-aligned with the World Bank, through engagements with the International Finance Corporation (one of the five constituent organizations of the World Bank Group that deals with the private sector).



- Foundations such as the Rockefeller Foundation, Wellcome Trust, Prince Charles' International Sustainability Unit, Climate Works and governments and multilateral agencies, such as Germany, Norway, the Republic of Korea, the United Kingdom, the Nordic Development Fund and Global Environment Facility have supported both action-oriented research and projects in developing countries.

This mobilization of international actors brings a diverse range of mandates and resources to overcome the challenges of climate change and health. It has helped to substantially increase the profile of the topic as a policy challenge, resulting in increased demand from World Bank clients for assistance both with diagnostics and with closing

the implementation gap. International partners bring mandates and resources that are different but complementary. The WHO, for example, has been particularly effective at raising the profile of the issue and providing directions for operationalizing the agenda (see Text Box on page 11).

World Bank: Driving action with others for a healthier future

The health impacts of climate change and opportunity to achieve health co-benefits through climate mitigation require immediate action. In a world that recognizes and acts upon this challenge, the health sector will be prepared for this new burden of climate-sensitive disease; the impacts of extreme weather events will be anticipated and managed; and low-carbon cities will provide mobility while addressing pollution and non-communicable diseases. Recognition of health costs will reinforce the economic case for shifting to low-carbon growth. Ministries will need to address these long-term impacts through a multi-sector approach. Through a strengthened coalition of international actors, the potential for health impacts to undermine the international community's goals for the post-2015 development agenda will be recognized and addressed.

International actors bring different mandates and resources to this issue, and the World Bank can play a role in conveying influential partners, building

knowledge resources, and mobilizing finance. As a convener, the Bank can help mobilize coalitions of action from a broad sectoral base, such as those in public health, environment, and importantly, finance. As a knowledge Bank, it can use analytical resources to strengthen the evidence base for meaningful action. As a financing institution, it can respond to growing demand to deliver responses at scale.

Experience demonstrates the need to engage with local and national governments as well as sectoral ministries, while also supporting collective action at a regional level on health issues that are often cross-border in nature. The World Bank has a unique reach to work with national and subnational governments, and particularly finance ministries, to scale up health sector responses. This can help national authorities build collective responses, and break down sector silos that can inhibit a strong response. Channeling new knowledge to the right decision-makers can enable direct investment in climate-health adaptation and mitigation. Convening and retaining experts knowledgeable in the field can aid in the implementation of these investments, once finance, health, environment, agricultural, and other related ministries accept and endorse financing for climate-health projects. Capacity building exercises can be conducted within borrowing governments to ensure knowledge transfer so that governments will be prepared to carry these objectives into the future.

Working with the WHO to target health and climate lending

In 2013, the World Health Organization published: *Protecting Health from Climate Change: Vulnerability and Adaptation Assessment*. As a document that provides guidance on conducting vulnerability assessments to the health risks of climate change, this work has direct relevance to World Bank lending for climate-health projects. World Bank projects are undertaken at regional and country levels, so vulnerability assessments that consider geographic associations of climate-sensitive health impacts can be readily addressed. Other notable factors that contribute to climate-health vulnerabilities include current health status, age, gender, socio-economic status, and public health infrastructures; consideration of these is often already a component of World Bank lending. Expanding vulnerability assessments to explore climate-health linkages could enhance the overall outcomes of World Bank work, particularly if co-benefits for health and climate are considered.

Looking ahead, the World Bank will deepen its engagement through a range of actions, including research, project finance, and implementation. An internal alignment of climate and health work is underway, which is intended to support the development of a strategic approach for the World Bank to engage on climate change and health in the future. As global interest in addressing health and climate change is growing, the World Bank will play a role alongside our partners to ensure the response meets the challenge.

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