The Climate-Health Connection in Global Summitry

John Kirton, Julia Kulik and Caroline Bracht
G7 Research Group

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Abstract

The strengthening scientific consensus about the connection between climate change and health is not reflected at the relevant organizations of the United Nations. It was more adequately addressed by the informal Group of Eight (G8) until its complete absence in recent years. Relative to the G8 with its comprehensive agenda, intermittent UN summits focused on health, environment, or development have lagged in recognizing and responding to the connection. This poorer UN performance is not caused by changes in the scientific consensus, or by severe climate and health shocks, which should spur both summit systems, particularly the UN to act. It depends more on the comprehensiveness, flexibility, annual occurrence, and compact likemindedness of the G8 summits compared to the subject-specific, organizationally constrained, intermittent, internally divergent UN ones. This suggests the UN will struggle to transform the Millennium Development Goals into new post-2015 sustainable development goals and define a post-2015 climate change control regime with a closer climate-health connection unless the G8 and now Group of 20 summits address the connection in a UN-supportive way.

Introduction

The Global Challenge

Global health challenges are growing in frequency, intensity, scale, scope and interconnectedness. Issues once conveniently categorized under the siloed headings of economics, security, trade, food and agriculture, and the environment are now accurately seen as integrally connected to global health (Fidler 2007; Blouin 2007; Hsu and White 2007; Smith and Martinez Álvarez 2008; Gostin 2012; Rogelij et al. 2013; Kirton and Guebert 2013, 2014.). Global health challenges thus now need to be examined not only in a cross-border context but also in cross-sectoral and cross-disciplinary ones.

Of the many connections, climate change could well be the "biggest global health threat of the 21st century" (Costello et al. 2009). The impacts of climate change on human health will be severe without a significant and effective policy intervention (Wiley and Gostin 2009). Moreover, "management of the health effects of climate change will require … new ways of international cooperation that have hitherto eluded us" (Costello et al. 2009).

In the scientific community, this connection is now accepted, despite the remaining uncertainties and complexities. Yet among governments, responsibility to respond is still formally and legally centred in the old siloed system of the United Nations, with its separate institutions for climate and for health. National government stakeholders also have separate ministries for health and the environment. Non-governmental organizations (NGOs) focus on single environmental or health problems. All offer few of the connections required to respond academically, even at the highest political level where comprehensive visions and creative solutions should arise. Such synergistic, high level attention is urgently needed, especially given the rapidly approaching UN deadlines in 2015 to define a new regime for climate change control and deliver and renew the Millennium Development Goals (MDGs) — three of which focus directly on health.

The Argument

The strengthening scientific consensus about the climate-health connection has not been well reflected in the organizations of the UN responsible for climate change or health. It had been addressed more adequately in the leading informal, global, restricted membership summit institutions of the largest economies, the Group of Eight (G8) until its complete absence in recent years. Relative to the G8 with its comprehensive agenda, the major periodic UN summits that have focused on health, the environment, or development have lagged in recognizing and responding to the climate-health connection. The difference in performance is explained by the differing characteristics of these institutions. The G8 members are more like-minded and flexible and meet on a predictable annual schedule, whereas the UN summits are more diverse, organizationally constrained, and intermittent. The UN's poorer performance suggests that the upcoming 2015 effort to transform the MDGs into proposed Sustainable Development Goals (SDGs) that articulate a closer connection between climate and health are unlikely on its own to reflect the ever stronger scientific consensus or growing concerns about the expanding number of people affected by climate related disasters. Stronger action by the G8 is needed for this change.

Strengthening Scientific Consensus and UN Failure

The scientific community increasingly agrees on the climate-health connection in the natural world (Steiner 2009; Sturchio 2009; Walpole, Rasanathan, and Campbell-Lendrum 2009; Marmot et al. 2008; Costello et al. 2009; World Health Organization [WHO] 2009a; Rogelij et al. 2013; McMichael 2013).[1] Since the 1990s, the increasing frequency and severity of extreme deadly weather events and the increasing spread of infectious vectors have visibly highlighted the link, even if some specific pathways and impacts, especially at regional and local levels, remain unclear (Haines, McMichael, and Epstein 2000; Holmes 2008; Costello et al. 2009; WHO 2009c; Intergovernmental Panel on Climate Change [IPCC] 2007a; Gottwald 2012).

While most of the attention has been on how climate change affects human health, there is growing interest in how health affects climate change, such as the large carbon

[1] This section draws on Kirton and Guebert (2014).

footprints of hospitals and co-benefits of active participation (WHO and Health Without Harm 2009; Walpole, Rasanathan and Campbell-Lendrum 2009; WHO 2009e). Both climate change and health are increasingly considered as both causes and cures for the challenges each other confronts. Both can benefit from collaboration (Walpole, Rasanathan and Campbell-Lendrum 2009).

At the intergovernmental level, the scientific case for quickly and fully forging the climate-health connection is solid. Soon after the Intergovernmental Panel on Climate Change (IPCC) was established, the connections between climate and health were clear. Those connections and the relevance of the World Health Organization (WHO) were identified in the IPCC's Second Assessment Report in 1995 and in the Third Assessment Report in 2001 (IPCC 1995, IPCC 2001). Subsequently, the IPCC's attention to health increased (IPCC 2007b). A detailed analysis was presented in the IPCC's (2007a) Working Group II Report, "Impacts, Adaptation and Vulnerability," which noted 15 specific climate-health challenges. The IPCC's attention to health has been supported and driven by partnerships with various stakeholders, including WHO, which sits on the IPCC and has since 1990 published reports on the health risks of climate change.

UN Organizational Failure in Recognition and Response

At the political level, however, there has been limited recognition and response from the relevant multilateral organizations, notably WHO and especially the Climate Change Secretariat. The multilateral UN system was deliberately created in 1945 as a siloed system with no centre for coordination or authoritative expansion at the top (Ikenberry 2001). Thus, most responses to the climate-health challenge have been independent rather than integrated (WHO 2009d).

The Health Community and the World Health Organization

The health community has increasingly emphasized the many ways that climate change harms human health (WHO 2009d; Chan 2008). WHO acknowledged the link at an early stage. Its first available document on the link, published in 1990, examined the scientific aspects of climate change and its potential effects on health, and concluded with several recommendations for policymakers (WHO 1990). Some argue that WHO's initial definition of health suggests that environmental law must be used to protect health (Onzivu 2012; Gostin 2008).

- 1996, 2000 – WHO produces additional report on climate-health link (McMichael et al. 1996; WHO 2000).
- 2005 – WHO publishes factsheet on climate-health links (WHO 2005).
- April 7, 2008 – World Health Day focuses on adverse health affects of climate change; WHO director-general Margaret Chan outlines five major health consequences of climate change (Chan 2008).
- May 24, 2008 – World Health Assembly issues resolution 61.19 on climate change and health urging member states to take action (WHO 2008b; see also 2008a, 2008c, 2008d, 2008e).

- 2008 – WHO reported: "a warmer and more variable climate threatens to lead to higher levels of some air pollutants, increase transmission of diseases through unclean water and through contaminated food, to compromise agricultural production in some of the least developed countries, and increase the hazards of extreme weather" (2008c, 2).
- 2009 – WHO publishes brochure and background report on how climate change affects health (WHO 2009a; 2009d).
- 2009 – Planned sideline event at the Conference of the Parties (COP) of the UN Framework Convention on Climate Change (UNFCCC) "to facilitate the inclusion of health concerns in the new agreement, decision-making, resource allocation and outreach activities … [and] to facilitate information exchange and mutually beneficial interactions amongst the stakeholders for raising awareness and actively involving the health sector in responding to the climate change challenge" (WHO 2009b).

WHO has also provided expert input on climate change to other UN agencies. It has actively tried to influence climate change governance by providing scientific evidence, participating in negotiations, and helping draft international environmental laws (Onzivu 2012). With the UN Development Programme in 2010 it mounted the first global initiative on the adaptation of public health to climate change. Speaking to the World Meteorological Organization on October 29, 2012, Margaret Chan (2012) again highlighted how climate variability affects health. And in 2014 in the lead-up to the UN climate summit, Chan identified climate change as "the defining issue for the 21st century, one that affects "the air people breathe, the food they eat, the water they drink, and the chances that they will get infected with a life-threatening infectious disease" (Chan 2014).

The Climate Community and the UNFCCC/Kyoto Protocol's COP/MOP

There is less acknowledgement of the climate-health link among climate actors, particularly the UNFCCC and its COPs and Meetings of the Parties (MOPs) to the Kyoto Protocol. The convention was adopted on May 9, 1992, and entered into force on March 21, 1994 (UNFCCC 2013). The climate-health connection appeared at the start of this "constitutional" document. Articles 1 and 4 declared, as the core connecting principle covering fact, causation, and rectitude, that climate change caused "significant deleterious effects" for "human health" and agreed that the signatories should minimize "adverse effects … on public health" (UNFCCC 1992). Also identified were several climate-health pathways such as drought, food, agriculture, water, natural disasters, and other social consequences (UNFCCC 1992; Smith and Martínez Álvarez 2008; Kirton and Guebert 2009a).

Since this strong start, however, there have been varied levels of recognition, and most recently a decline. A direct link between climate and health was made in the outcome documents of the COPs in 1996, from 1999 to 2003, and at the MOP in 2005. But no link was made at either the COPs or MOPs from 2005 to 2009.

From 1992 to 2005 COP/MOP outcome documents identified several key climate-health links, including how climate change, extreme weather events, and ozone-affecting chemicals caused significant and potentially irreversible health problems. Members recognized that developing countries, small island developing states (SIDS), Central America, and Africa were most affected. Also specified were principles and instruments for minimizing adverse effects, such as the expression of regret, adaptation, the monitoring of debt relief finance, climate funds, forecasting, early warning, prevention, the setting of integrative objectives, technology transfer, afforestation, and reforestation.

Despite this early climate-health link, parties to the UNFCCC never explicitly recognized WHO as a relevant actor, even though they recognized several other UN bodies, such as the Food and Agriculture Organization (FAO) and the International Energy Agency (Kirton and Guebert 2009a). The UNFCCC process failed to encourage member countries to address the serious climate-health challenges. And even as the scientific evidence supporting the climate-health link mounted—particularly in the late 2000s, COP/MOP attention to the link faded away completely after 2005. The Copenhagen Accord, released on December 18, 2009, paid it no attention at all.

In addition, even when the UNFCCC process recognized the climate-health link, it had little impact. Few Conference of the Parties health decisions, limited participation of the health sector, poor reporting, and poor financing of health has led to increasing concern that international and national environmental law has not advanced the protection of public health (Onzivu 2012). More specifically, there has been an acknowledgement that the legal regimes under the UNFCCC and Kyoto Protocol are centred on mitigation and energy and not human health.

The Promising Performance of the G8

Outside the UN's multilateral organizations, the world's leading summit institutions, led by the G8, governed both health and climate in an increasingly integrated way until 2013. It did so across several dimensions of global governance (Kirton 2013). The first dimension is its public deliberation in the conclusion documents issued collectively in the leaders' names. The words appearing there carry the full authority and agreement of the world's most powerful leaders and are the subject of much hard negotiation among themselves and their personal representatives (Hajnal 1989). The second dimension is direction setting by approving principles, defined classically as "beliefs of fact, causation, and rectitude" (Krasner 1983, 2). G8 leaders have long struggled over a public and collective consensus that global warning is a fact, that it has human causes, and that it is right, proper, and just to control climate change. These consensus-principled directions, as well as the collective deliberations, have a larger impact and importance, as constructive scholars of international relations have highlighted (Haas 2002; Pettenger 2007). The third dimension is decision making, through the future-oriented collective commitments with sufficient precision and obligation that the leaders make (Abbott et al. 2000). These can be ambitious and significant, setting numerical targets and timetables, and mobilizing new money to meet them. The fourth dimension is delivery of these decisions through members' compliance and implementing behaviour after the summit. This compliant behaviour shows the autonomous impact of the international institution

on the otherwise constrained action of sovereign states (Kokotsis 1999; Kirton 2006; Kirton, Roudev, and Sunderland 2007).

Deliberation and Direction Setting

The G8 has addressed both health and climate change in parallel since 1979 (Kirton and Guebert 2009b; 2009c). In 1997, when the Kyoto Protocol paid no attention to the link, the G7/8 connected the two issues for the first time (see Appendix A). It appeared again with a single reference in 2003, three references in 2005, and then continuously with one or two references each year from 2007 to 2012. However, it failed to appear at the two most recent summits in Lough Erne and Brussels.

At the start of this sequence, at their U.S.-hosted Denver Summit in 1997, G8 leaders declared:

> Overwhelming scientific evidence links the build-up of greenhouse gasses in the atmosphere to changes in the global climate system. If current trends continue into the next century, unacceptable impacts on human health and the global environment are likely. Reversing these trends will require a sustained global effort over several decades, with the involvement of all our citizens, and changes in our patterns of consumption and production (G8 1997).

The leaders thus established the foundation of the G8's climate-health regime by declaring that climate change was a major challenge, one that affected human health, did so in unacceptable and harmful ways, and required an immediate response.

After an absence of several years the G8's attention returned in 2003 (G8 2003). It recognized the potential of technologies and research to improve public health by cutting pollution and reducing greenhouse gases. While missing from the 2004 American-hosted Sea Island Summit, the link came back at the British-hosted G8 Gleneagles Summit in 2005 (G8 2005a; 2005b). Here the G8 identified the specific impacts of climate change on respiratory disease and healthcare costs. In doing so it forged, for the first time, the trilateral climate-health-economy link. The issue was absent from the Russian-hosted St. Petersburg Summit in 2006, although health was one of that summit's priority themes.

From 2007 to 2012, however, G8 leaders continuously forged the link (see Appendix A). In 2008 they focused on climate change adaptation and how "minimizing the impacts of extreme hydrological variability are critical to protecting human health" (G8 2008). In 2009 they were "deeply concerned about the consequences of climate change on … health and sanitation, particularly for LDCs [least developed countries] and SIDS, but also for the poor and most vulnerable in all countries" (G8 2009). In 2010, food security was an urgent global challenge exacerbated by climate change, and was enhanced by reducing malnutrition as a contribution to "improved maternal and child health" (G8 2010). In 2011, innovation was presented as crucial for "climate change, poverty eradication and public health," while a low carbon economy generated significant benefits for health (G8 2011). In 2012, "short-lived climate pollutants" were recognized as having an impact on "on near-term climate change … and human health" (G8 2012).

The G8 had increasingly acknowledged the link, especially on a continuous basis from 2007 to 2012 but now seem to have abandoned it completely at a crucial time in the lead up to the launch of the SDGs. Its attention has been strongest when its summits have had climate change as a priority, as in 1997, 2003, 2005, 2007, 2008, and 2009, in contrast to health, which was a priority only in 2006 and 2010. It has also been stronger when the summits have been more closely and directly connected to Africa, and thus to the acute health challenges there (Cooper, Kirton, and Schrecker 2007; Kirton, Cooper, Lisk, and Besada 2014). As a result of that there is still hope that the Elmau Summit, which has prioritized both climate change and African development will make the connection between climate change and health, despite their poor performance in the lead up.

G8 statements of fact have presented both climate change and health as a reality. Statements of causation have been entirely on how climate change harms human health, even as the context of climate change and health—and the causal pathways between the two—have expanded significantly to cumulatively produce a more complex causal map. Statements of rectitude have referred to an array of international institutional agreements. Yet after 2005 none came from UN summits apart from a reference to the Copenhagen agreement in 2009. They came increasingly from the G8 summit itself until 2013.

These statements on the link also suggest the key underlying causes. Science was specifically referenced at the start—boldly with "overwhelming scientific evidence" in 1997 and again amidst "uncertainties" in 2005, but not in subsequent years (G8 1997; 2005a). Shock-activated vulnerability, defined as instances with a high level of surprise and high threat to national values that can come as an assault with no precedents or warning and also as one installment along a cumulative causal chain, was another factor (Kirton 2013). The closest reference to such vulnerability came in the 2012 statement that short-lived climate pollutants caused "over thirty percent of near-term global warming as well as 2 million premature deaths a year" (G8 2012). Summitry was increasingly featured as a cause. This cadence started with references in 2003 to the UN's 2002 World Summit on Sustainable Development (Rio+10), in 2005 to the UN Millennium Summit of 2000, and after 2005, G8 summitry itself as a self-referential and self-sustaining summit institution. One anomaly was the declaration from the summit of the Major Economies Meeting on Energy Security and Climate Change (MEM) at the G8 summit in 2008. The MEM's (2008) single paragraph on the climate-health connection noted the UNFCCC as "the global forum for climate negotiations."

Decision Making

An assessment of the G8's climate-health–related commitments made from 1975 to 2014 shows six central trends (see Appendix B). First, G8 deliberation on this issue has not been translated into a significant number of decisions. Since 1975 members have made only seven commitments that recognized the relationship between general environmental degradation on the one hand and human health on the other. The only commitment to reference climate change specifically came in 2012. Second, the number of climate-health commitments has not increased, despite the growth of scientific research and consensus. Indeed, no environment-health commitments were made between 2003 and

2012 and from 2013-14. Third, there is a bulge between 1996 and 1997 when three commitments were made, almost half of the total overall. Fourth, the development influence is apparent, as two of the three commitments made in 1996 and 1997 have a strong development focus, with references to official development assistance and assistance for African countries. Fifth, the biotechnology driver appears in 2000 and 2003, as these two commitments emphasized the use of biotechnologies and research when addressing the impact of environmental challenges on human health. Sixth, there is little congruence between what G8 summits committed to and what the relevant UN summits promised. Particularly surprising is the lack of congruence between the G8's 2012 Camp David Summit and the 2012 Rio+20 Summit, despite the fact that they occurred within one month of each other.

Delivery

In delivering its environment-health commitments in the following year until the subsequent summit is held, G8 performance is also weak. Compliance is classically measured on a scientific scale from +1.00 for full compliance, 0 for partial compliance or work in progress, and –1.00 for no compliance or action that is antithetical to the commitment (Kokotsis 1999). (The score is converted to a percentage by adding 1 and dividing by 2.)

The extensive compliance data base developed by the G8 Research Group since 1996 shows that G8 members' compliance with both their separate health and the climate commitments has been considerable. The 56 assessed health commitments from 1983 to 2012 have an average compliance score of 76% (+0.51) (Kirton, Roudev, Sunderland, Kunz, and Guebert 2010).[2] The 60 assessed climate change commitments from 1985 to 2010 have a nearly identical average compliance score of 75% (+0.49) (Kirton, Guebert, and Bracht 2011).

The one climate-health commitment, which was on short-lived pollutants in 2012, had a compliance score of only 56%, compared to that summit's average of 79%. Compliance with the climate-health commitments was complete for Canada, Germany, and the European Union, partial for France, Japan, the United Kingdom, and United States, and non-existent for Italy and Russia. There is also one environment-health that has been assessed for compliance. The commitment came in 1997 and was on working with African countries to ensure adequate funding to support environmental protection and the health of their people among other things. This commitment had a compliance score of 50%, with positive scores from Germany, the UK and the US, a partial score from Japan and negatives scores from France, Canada and Italy and no data from Russia and the EU.

UN Health, Environment, and Development Summitry

Summitry itself is thus not a solution. It has shortcomings, especially in the decisional and delivery domain, even within the informal G8. Moreover, the major UN summits that

[2] The G8 Research Group's inventory of commitments and compliance is available from the authors on request.

have focused on health, the environment or sustainable development, while they have made their contribution, have lagged behind even the G8's modest performance in their recognition and response to the linked challenge and cures that the scientific consensus shows and suggests (Haas 2002).

UN Health Summits: HIV/AIDS 2001 and Non-communicable Diseases 2011

The UN's landmark summits on health have come to recognize the link in their most authoritative outcome documents, but only very recently—in 2011. Since 2000 there have been two such summits, both focused on a single subject of pressing concern: that on HIV/AIDS in 2001 and that on non-communicable diseases (NCDs) in 2011. The first gave no attention to the environment-health connection at all. The second did so to a substantial degree.

The HIV/AIDS Summit 2001

The UN's first health-focused summit was on HIV/AIDS, held as a meeting of the UN General Assembly in Special Session on June 25–26, 2001. Its collective "Declaration of Commitment on HIV/AIDS" made no reference to the environment generally or to climate change specifically (UN 2001).

The NCD High-Level Meeting 2011

A decade later the UN's second health-focused summit, the High-Level Meeting on the Prevention and Control of Non-communicable Disease was held in New York in September 2011 (Samuels, Kirton, and Guebert 2014). Here the climate-health connection, usually expressed as a more general environment-health link, appeared in four paragraphs in the outcome document. They took 459 words, or 8.7% of the document overall.

In general terms, environment was linked to health equally in all regions and countries in the world, embracing developed and developing countries alike. This included positive references to the Commonwealth Heads of Government Meeting (CHOGM) and the Summit of the Americas, which are informal institutions with a large number of members from the ranks of both the very rich and especially the very poor countries. Similarly, specific references to climate change and its effect on the control and prevention of NCDs were expressed in inclusive terms.

The statement of fact on climate change portrayed it as containing such certainty, importance and urgency to pose "increasing challenges" and need a "prompt and robust" response (UN 2012b).

The statement of causation named the environment as the cause of health harms, in general and for NCDs. More generally, environmental determinants of health were "among the contributing factors to the rising incidence and prevalence" of NCDs. The NCD High-Level Meeting added how the environment helps health, in calling for "increased availability of safe environments in public parks and recreational spaces to encourage physical activity" (UN 2012b).

The statement of rectitude consisted of an introductory recollection of 10 previous declarations: three from multi-subject informal institutions of a global or regional reach, and the others largely from regional components of WHO.

This treatment suggests again that the key causes that lie behind the climate-health link. There was no reference to science or shocks of a health or climate/environment sort. In the realm of summitry, there was a call for coordinated, multi-sectoral health-in-all, whole-of-government approaches across many subjects. Most strikingly, three of the four reminders of past declarations referred to multi-subject informal institutions: the Caribbean Community (CARICOM), CHOGM, and the Summit of the Americas.

UN Environment Summits: From Rio 1992 to Rio+20 in 2012

The UN's landmark summits on the environment and development have also recognized the climate-health link in their outcome documents but in only small and selective ways.

The first major UN meeting to focus on the environment was the landmark UN Conference on the Human Environment, held in Stockholm on June 5-16, 1972. It was attended by representatives from 113 states, but only two heads of state, Olaf Palme of Sweden and Indira Gandhi of India. Also present was the UN secretary general as well as representatives from the International Labour Organization, FAO, United Nations Educational, Scientific, and Cultural Organization, and the International Monetary Fund among others. The outcome document made several links between the environment in general and human health, stating: "both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights, the right to life itself" and that "states shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health" (UN 1972). It made no reference at all to climate change itself. Moreover, it was overwhelmingly a ministerial-level conference, rather than one to which country leaders came. UN subject-specific summitry started much later, following the World Summit on Children in 1990 (Johnson 2001, 260).

Rio 1992

The UN's first environment summit was the historic Conference on Environment and Development, held in Rio de Janeiro in June 1992. Its general outcome document, the "Rio Declaration on Environment and Development," noted the climate-health connection only as a general link between environment and health in two paragraphs whose 58 words represented 5.28% of the full declaration (UN 1992).

This treatment came in two principles. Principle 1 stated that "human beings are … entitled to a healthy and productive life in harmony with nature" (UN 1992). Principle 14 declared that "States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health."

The summit thus presented the link as a general global one, although the second principle on environmental dumping implicitly singled out developing countries for special protection. This treatment causally portrayed the environment as harming human health but affirmed the possibility that harmony could be secured for all. Its statement of rectitude privileged humans among living things, as they were "entitled" to both health and nature (UN 1992).

In these two principles there was no reference to science, shock-activated vulnerability, or international agreements, in summit or other forms.

Rio+10: World Summit on Sustainable Development 2002

At the World Summit on Sustainable Development in Johannesburg, South Africa, from August 26 to September 4, 2002, references to the climate-health link reached a record high but were still very limited. They arose in two paragraphs containing 160 words, representing 9.62% of the total words in the final political declaration.

The declaration noted that "the global environment continues to suffer. Loss of biodiversity continues, fish stocks continue to be depleted, desertification claims more and more fertile land, the adverse effects of climate change are already evident, natural disasters are more frequent and more devastating, and developing countries more vulnerable, and air, water and marine pollution continue to rob millions of a decent life" (UN 2002). Later it noted the clear connection: "Change in the Earth's climate and its adverse effects are a common concern of humankind. We remain deeply concerned that all countries, particularly developing countries, including the least developed countries and small island developing States, face increased risks of negative impacts of climate change and recognize that, in this context, the problems of poverty, land degradation, access to water and food and human health remain at the centre of global attention." Its many broader health-environment connections focused on environmental impacts on the high prevalence of debilitating diseases, health gains for the whole population, the environmental causes of ill health, women and children, vulnerable groups, people with disabilities, elderly persons, and indigenous people.

Gro Harlem Brundtland, WHO director general, spoke at the summit. Among the 16 other organizations represented were the Commonwealth Secretariat, the Council of Europe, and the Nordic Council. NGOs, such as the International Committee of the Red Cross, also attended.

Rio+20, 2012

The Rio+20 UN Conference on Sustainable Development was held in Brazil in June 2012. The climate-health connection appeared in only one paragraph of the outcome document, taking only 188 words or less than 1% (0.76) of the total.

The connection appeared in the special section devoted to SIDS, which presented them as a "special case" (UN 2012a). They were so in view of their "unique and particular vulnerabilities, including their small size, remoteness, narrow resource and export base, and exposure to global environmental challenges and external economic shocks,

including to a large range of impacts from climate change and potentially more frequent and intense natural disasters."

The statement of fact, rectitude, urgency, and importance on climate change was very high and indeed existential. It read: "Sea-level rise and other adverse impacts of climate change continue to pose a significant risk to small island developing States and their efforts to achieve sustainable development and, for many, represent the gravest of threats to their survival and viability, including for some through the loss of territory" (UN 2012a).

The health connection, in the next sentence, came as a parallel concern rather than a direct, causally connected one. It read: "We also remain concerned that, while small island developing States have progressed in the areas of gender, health, education and the environment, their overall progress towards achieving the Millennium Development Goals has been uneven" (UN 2012a). Thus health was seen more as a source of progress rather than a problem to be addressed.

This treatment together explicitly reveals the key causes that lie behind particular portrait of the climate-health link. The central cause was shock-activated vulnerability, of a geophysical and even existential sort. But this geographical uniqueness meant that the principled portrait was explicitly irrelevant to the world at large. There was no explicit reference to science, which remained unrelated as a rationale. Summitry was integrated within the UN system, with the direct link to the MDGs in the context of health. But there was no link to any UN summit in regard to climate change. And the UN's MDG siloed structure, as seen in the three health pillars of MDGs 4, 5, and 6, helped keep health and climate separated even in 2012, 12 years after the creation of the MDGs.

UN Millennium Summits: 2000, 2005, 2010

At UN summits focused on development, where both health and the environment were contained within a single set of eight MDGs, the climate-health connection has also been recognized, but not in any prominent, reliable and sustained way. Because three of the eight MDGs (4, 5, and 6 on children's health, maternal health, and HIV/AIDS respectively) are directly and fully classic health ones, all references to climate change in the MDG summits' outcome documents inherently connect health to climate change, even when they do not explicitly draw the link. But beyond this basic structure, the links are very few.

The Millennium Summit, 2000

The first such summit, the Millennium Summit in 2000, produced a declaration that made no reference to the environment-health link.

The Millennium Development Summit 2005

The second MDG summit, in 2005, forged the link in a small and specialized way. It did so in three paragraphs, comprising 221 words or 1.35% of the Millennium Declaration itself.

The specific climate-health connection was presented as a parallel concern of relevance only to developing countries, "to address the special needs of developing countries in the areas of health … and the impact of climate change" (UN 2005). Its dominant environmental concern was with chemicals and hazardous waste.

The impact of climate change was stated as a simple fact. The causal cadence had chemicals harming both the environment and human health. And its statements of rectitude consisted of several UN agreements: Agenda 21, the Johannesburg Plan of Implementation, and the MDGs, along with a request to the secretary general to strengthen coordination of the UN.

The catalyst of this portrait was science, in the form of "science-based risk assessment" and "research" (UN 2005). References to shocks or vulnerabilities were absent. And references to summits were restricted to those of the UN—the environment ones of Agenda 21 and the MDGs of 2000.

The Millennium Development Summit, 2010

At the MDG Summit in New York in September 2010 the climate-health connection, broadly defined, appeared in only three paragraphs of the outcome document. It took only 192 words or just over 1% (1.48%) of the total.

Climate change was presented as a problem that was now universal, but still of particular concern to developing countries. The relevant paragraphs began: "we recognize that climate change poses serious risks and challenges to all countries, especially developing countries" (UN 2010). This was an advance from the far more specialized grouping of SIDS referred to at Rio+20, but still short of an inclusive global concern. It was a portrait that should have catalyzed the developing country–centric UN to act.

However, unlike Rio+20, the MDG Summit's statement of fact contained no sense of health or climate shocks, vulnerability, nor express the action-inspiring urgency that shock-activated vulnerability brought. The risks and challenges posed by climate change were merely serious, and even to the developing countries were by no means the gravest ones. The health component did expand to include health systems and "the increased incidence of non-communicable diseases, road traffic injuries and fatalities, and environmental and occupational health hazards" (UN 2010).

The statement of causation centred on the claim that "addressing climate change will be of key importance in safeguarding and advancing progress towards achieving the Millennium Development Goals" (UN 2010). This was the single statement on climate change harming health.

The statement of rectitude affirmed the principles of the UNFCCC, notably "common but differentiated responsibilities and respective capabilities" (UN 2010). It also affirmed the convention as "the primary international, intergovernmental forum for negotiating the global response to climate change," and the need to "enhance policy coherence for

development" and to achieve the MDGs.

Once again the climate-health connection was only an indirect, contextual one. The first paragraph connected climate change only to the MDGs. The second paragraph connected the MDGs to "environmental" issues (UN 2010). And the third paragraph, in the most direct link refereed to "environmental and occupational health hazards."

This treatment again suggests the key causes that lay behind its limited conception of the climate-health link. There was no reference to science or shocks as they relate either to climate or health. Most strikingly, summitry of the MDG sort had severe limits. There was a call for enhanced policy coherence "at all levels" and for "mutually supportive and integrated policies across a wide range of economic, social and environmental issues for sustainable development" to achieve the MDGs (UN 2010). But these were overwhelmed by the far more forceful and specific commitments made at the sub-summit level, based on the siloed legality of the UNFCCC and its organizational forums for negotiating the global response to climate change, as outlined above.

The Pattern of UN Summitry

Taken together, the climate-health connection at these eight major UN health, environment and development summits shows several patterns (see Appendix C).

First, there has been no increase in attention between 1992, 2000, and 2012. Second, the attention to climate and health occurred in environment summits in 1992 and 2002 and the health summit in 2011. The topic was not addressed at the MDG ones. Third, the focus on climate and health has evolved from one focused on developing nations to one focused on the world as a whole. Finally, the justification for focusing on climate and health has cited science and calamities only once each. References to other meetings as a justification are more common.

Similarly the components of environment/climate and of health that are involved in the connection, and their pathways, have slowly and fitfully become more comprehensive and complex. The facts are generally accepted, but causation is overwhelmingly limited to how climate change harms health. Rectitude remains embedded in international agreements produced by the UN and the often siloed but sometimes supporting issue-specific summits it mounts.

Causes: Science, Shocks and Summitry

The analysis above has shown that G8 summitry has connected climate change and health more than UN summitry, even if neither the G8 nor the UN has done so to a substantial, sustained degree. Well beyond deliberative conclusions and principled directions, the G8 has made one direct climate-health commitment, on short-lived climate pollutants in 2012, while the UN has made only one indirect one, listing climate and health as parallel co-benefits for developing countries in 2005. On the more general environment-health connection, the G8 has made an additional six commitments starting in 1981, while the UN has made only one, at the ministerial-level Stockholm conference back in 1972.

The poorer performance of UN summitry, within the framework applied here, is caused less by the changing scientific consensus or by the particular pattern of severe climate and health shocks than by the relatively constant characteristics of summitry particular to the institutions themselves.

This conclusion is somewhat surprising as global scientific consensus and global climate and health shocks should have at least an equal impact, in time and degree, on both UN and G8 summit-level governance. Indeed, in their specific pathways, scientific consensus and shocks should cause the UN to respond to a greater degree than the G8. In the realm of science, the IPCC is a UN-centred intergovernmental body directly connected to the UNFCCC and its COP/MOP, and WHO operates within the UN galaxy as its venerable, central body for health. In contrast, the G8 has no similarly associated scientific bodies for climate change or for health. Similarly, climate and health shocks should be felt first and more fully by the highly vulnerable, usually small-state members that belong to and influence the near universal and thus geographically inclusive UN, rather than the world's most powerful countries located on the North Atlantic as well as Japan, which exclusively make up the G8. It is thus a puzzle why the G8 has responded to the climate-health connection faster and more fully than the UN system has. The start of an answer may lie in the differing comprehensiveness, flexibility, iteration, and commonality of the two summit types. This conclusion arises from both the casual connections made within the summit processes themselves, as recorded in their concluding communiqués, but also from the match between their performance and the pattern of shocks, science, and summitry observed by analysts outside.

Scientific Consensus from the North to the South

As the analysis above shows, the scientific consensus on the climate-health connection has been growing (see Appendix D). It has reached a level where it has been recognized by global governors and has helped guide their response. However, science appeared as a conscious catalyst and proximate pathway for the G8 at the start in 1997 and again in 2005, but not since. For the UN summits, it appeared later and only once, at the MDG Summit in 2005. It was notably absent from the summit on NCDs in 2011, as well as Rio in 1992 and Rio+20 in 2012. While the G8 recognized the scientific consensus first, both the G8 and the UN shared the 2005 moment, and the silence since.

Shock-Activated Vulnerability

Politically arousing shock-activated vulnerability has also grown, particularly in the form of deadly and destructive natural disasters (see Appendix E). In 2012 the summits of both the UN and G8 took notice of calamitous occurrences related to climate change and identified the link between climate and health. However, with this exception, such climate shocks have never served as a conscious catalyst and proximate pathway in the G8. At the UN summits they also appeared only in 2012 at Rio+20, but were absent everywhere else. And even when in 2014 there was the deadliest outbreak of Ebola, which is to believed to be exacerbated by climate change neither the UN, the G8 nor the G20 made the connection in its official summit documentation.

Summitry: Comprehensiveness, Flexibility, Iteration, Commonality

Differences in the characteristics of summitry between the G8 and the UN thus stand out as the catalyst and cause of the higher performance of the G8 in governing the climate-health link.

As a communiqué-encoded, conscious catalyst at the G8, summitry—especially that of the G8 itself—was increasingly featured as a cause. As detailed above, this started in 2003 and 2005, with references to UN summits, but since 2007 shifted entirely to G8 and G8-centric summits.

At the UN, summitry had a very different cadence as a cause. There were no references to summits of any sort at UN health, environment, or development summits before 2005, and none at its environmental summits afterward. In 2005, the MDG Summit self-referentially mentioned agreements from two previous summits—Rio in 1992 and the Millennium Summit in 2000. The MDG Summit in 2010 made no specific references to any summits, relying instead on authority of the sub-summit, siloed legality of the UNFCCC and its organizational forum for negotiating the global response to climate change. However, in 2011 the NCD High-Level Meeting contained four references to summits, three of which were to the comprehensive multi-subject CARICOM, CHOGM, and the Summit of the Americas.

Thus the G8 started by invoking the authority of UN summits for environment and development but after 2005 shifted entirely to relying on its own. The UN relied on no one's summits before 2005, then indirectly to two of its own in 2005, and, finally, heavily on other informal institutions in 2011. Throughout, the UN chose to cite formal ministerial-level agreements from the UN's organizational silos rather than summitry, even of its own increasing UN ones.

Behind these communiqué-cited catalysts lie the deeper causes. The G8's comprehensive agenda and informal flexibility make it easier to forge links between climate and health and to refer to its summits as an authority. The G8's annual iteration, relative to the UN's intermittent and ad hoc summits, gives the G8 more opportunities to refer to its own summits from the recent past and those that it knows soon lie ahead. And the G8's membership of many fewer, much more democratically likeminded leaders and countries make it easier to repeat its previous and prospective commitments in order to comply accountably with the climate-health consensus and commitments it has forged.

Conclusion: Shaping the 2015 SDGs

This analysis suggests that the continuing specific characteristics of global summitry, more than cumulating scientific consensus or shocks, are causes that contribute to the differing performance of G8 and UN summits in forging the climate change-health link. The greater comprehensiveness, flexibility, assured annual iteration, and internal likemindedness of the compact G8 summits have led to their greater performance on four key dimensions of addressing and acting on that climate-health link, while shocks and science have little effect. Still, the considerable over-time variation in the performance of

both G8 and UN summits in forging the link, particularly its sudden disappearance from the agenda in recent years suggests that other factors, including the intellectual and professional competence of the key individual agents and their political constraints and calculations, also have a causal effect. The concert equality model of G8 governance and the systemic hub model of G20 governance provide a promising multilevel framework by which the causal force of these additional factors can and should be assessed in future research (Kirton 2013).

At present, however, this analysis suggests that the likely progress of the UN system and its summits in shaping the post-2015 agenda into new sustainable development goals and defining a post-2015 climate change regime, with a closer climate-health link, will still lag behind both the compounding shock-driven global challenge and the growing scientific consensus. As the Report of the High Level Panel of Eminent Persons on the Post-2015 Development Agenda (2013) highlighted, despite the significant progress made on child health and malaria the new agenda should focus on health care, link the environment and development and put the climate change challenge at its core. It will need the G8 and now G20 summits to address the challenge in a major way that supports the UN. Thus, the G8 needs to rediscover its recently central health agenda and add it to its ongoing climate change one. It has an opportunity to do so at its upcoming summit at Schloss Elmau where climate change and African development are already priority agenda items. Similarly, the broader G20 should launch a serious health agenda and link it to its useful work on climate change control. At their last summit in Brisbane, Australia, they issued for the first time a standalone health document on Ebola but failed to mention the climate change connection. Finally, the BRICS summit of Brazil, Russia, India, China, and South Africa should restore its once substantial heath agenda and connect it to its continuing work on climate change. It is deeply paradoxical and problematic that now that these three leading global informal institutions deal with climate change in a continuous way, they have largely abandoned their older, once central concern with human health, and thus its link to climate change.

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Appendix A:
Summitry: Health and Climate in G8 Leaders' Documents, 1975–2014

Year	# of Words	% of Total Words	# of Paragraphs	% of Total Paragraphs	# of Documents	% of Total Documents	Dedicated Documents
1975	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0
1997	67	0.52	1	1.0	1	25	0
1998	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0
2003	93	0.64	2	0.4	1	7.1	0
2004	0	0	0	0	0	0	0
2005	335	1.6	3	0.6	2	13	0
2006	0	0	0	0	0	0	0
2007	162	0.52	1	0.2	1	10	0
2008	285	1.7	2	0.8	2	33	0
2009	118	0.4	1	0.2	1	13	0
2010	292	3.3	1	1.0	1	50	0
2011	191	1.0	2	0.8	1	20	0
2012	246	2.2	3	1.6	2	33	0
2013	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0
Ave	44.7	0.3	0.4	0.2	0.3	5.1	0

Notes: Compiled by Rozalind Theriault And Julia Kulik April 27, 2015.
Data are drawn from all official English-language documents released by the G8 leaders as a group. Charts are excluded.

“# of Words” is the number of climate change-related subjects for the year specified, excluding document titles and references. Words are calculated by paragraph because the paragraph is the unit of analysis.
“% of Total Words” refers to the total number of words in all documents for the year specified.
“# of Paragraphs” is the number of paragraphs containing references to climate change for the year specified. Each point is recorded as a separate paragraph.
“% of Total Paragraphs” refers to the total number of paragraphs in all documents for the year specified.
“# of Documents” is the number of documents that contain climate change subjects and excludes dedicated documents.
“% of Total Documents” refers to the total number of documents for the year specified.
“# of Dedicated Documents” is the number of documents for the year that contain a climate change-related subject in the title.

Appendix B:
G8 Climate-Health Commitments, 1975–2014

1983-23. We have agreed to strengthen cooperation in protection of the **environment**, in better use of natural resources, and in **health** research.

1996-42. Giving more explicit priority to sustainable development and the alleviation of poverty. This should mean adequate ODA funding of essential sectors such as **health** and education, basic infrastructures, clean water schemes, **environmental** conservation, microenterprises, agricultural research and small-scale agriculture, with for example the help of IFAD [International Fund for Agricultural Development].

1997-21. Our governments will explicitly incorporate children into **environmental** risk assessments and standard setting and together will work to strengthen information exchange, provide for microbiologically safe drinking water, and reduce children's exposure to lead, **environmental** tobacco smoke and other air pollutants [**health** of children].

1997-55. We will work with African countries to ensure adequate and well-targeted assistance for those countries which have the greatest need and carry out the necessary broad-based reforms. This assistance will include support for democratic governance, respect for human rights, sound public administration, efficient legal and judicial systems, infrastructure development, rural development, food security, **environmental** protection and human resource development, including **health** and education of their people.

2000-79. We will work to strengthen our support for their capacity building to harness the potentials of biotechnology, and encourage research and development as well as data and information sharing in technologies, including those that address global food security, health, nutritional and environmental challenges and are adapted to specific conditions in these countries.

2003-86. Promote sustainable agricultural technologies and practices, including the safe use of biotechnologies among interested countries, that contribute to preventing famine, enhancing nutrition, improving productivity, conserving water and other natural resources, reducing the application of chemicals, improving human health and preserving biodiversity.

2012-29. Recognizing the impact of short-lived climate pollutants on near-term climate change, agricultural productivity, and human health, we support, as a means of promoting increased ambition and complementary to other CO2 [carbon dioxide] and GHG [greenhouse gas] emission reduction efforts, comprehensive actions to reduce these pollutants.

Appendix C:
Climate-Health Connections in Outcome Documents from UN Summits on the Environment, Development, and Health, 1992–2012

Summit	Focus	% of Words	% of Paragraphs	Shocks	Science	UN Summits	PSI
1992 Rio Summit	E	5.28	7.40	0	0	0	0
2000 Millennium Summit	D	0.00	0.00	0	0	0	0
2001 Special Session on HIV/AIDS	H	0.00	0.00	0	0	0	0
2002 World Summit on Sustainable Development	E	9.62	4.88				
2005 World Summit (MDGs)	D	1.35	1.01	0	2	2	0
2010 Summit on MDGs	D	1.48	1.46	0	0	1	0
2011 HLM on NCDs	H	8.77	4.90	0	0	1	3
2012 Rio+20 Summit	E	0.76	0.35	2	0	1	0
2014 Climate Summit	E	4.2	1.2	0	1	0	0

Notes:
PSI = plurilateral summit institution; UN = United Nations.
Focus refers to the general focus of the summit: E = environment, D = development, H = health.
"% of Total Words" refers to the total number of words in all documents for the summit.
"% of Total Paragraphs" refers to the total number of paragraphs in all documents for the summit.
Shocks, Science, UN Summits and PSI refer to the number of references in outcome documents.

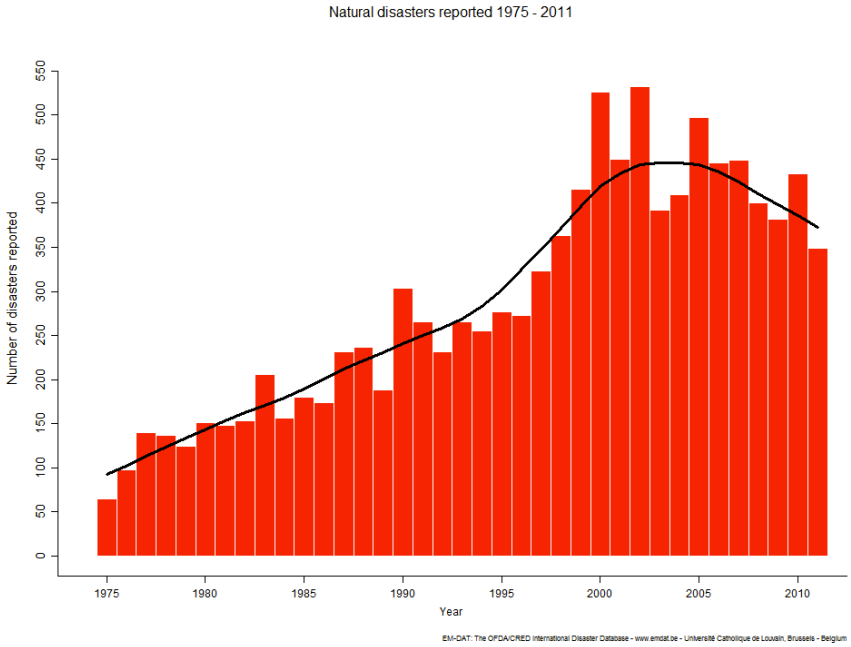
Appendix D:
Health-Climate Challenges Identified by the Intergovernmental Panel on Climate Change, by Varying Confidence

Very High Confidence	High Confidence	Medium Confidence	Low Confidence
Climate change currently contributed to the global burden of disease and premature deaths	Emerging evidence of climate change effects on human health shows that climate change has altered the seasonal distribution of some allergenic pollen species	Emerging evidence of climate change effects on human health shows that climate change has altered the distribution of some infectious disease vectors	Projected trends in climate change–related exposures of importance to human health will increase the number of people at risk of dengue
Projected trends in climate change–related exposures of importance to human health will have mixed effects on malaria: in some places the geographical range will contract, elsewhere the geographical range will expand and the transmission season may be changed	Projected trends in climate change–related exposures of importance to human health will increase malnutrition and consequent disorders, including those relating to child growth and development	Emerging evidence of climate change effects on human health shows that climate change has increased heat wave–related deaths	
Economic development is an important component of adaptation, but on its own will not insulate the world's population from disease and injury due to climate change	Projected trends in climate change–related exposures of importance to human health will increase the number of people suffering from death, disease and injury from heat waves, floods, storms, fires and droughts	Projected trends in climate change–related exposures of importance to human health will increase the burden of diarrheal diseases	
	Projected trends in climate change–related exposures of importance to human health will continue to change the range of some infectious disease vectors		
	Projected trends in climate change–related exposures of importance to human health will increase cardio-respiratory morbidity and mortality associated with ground-level ozone		

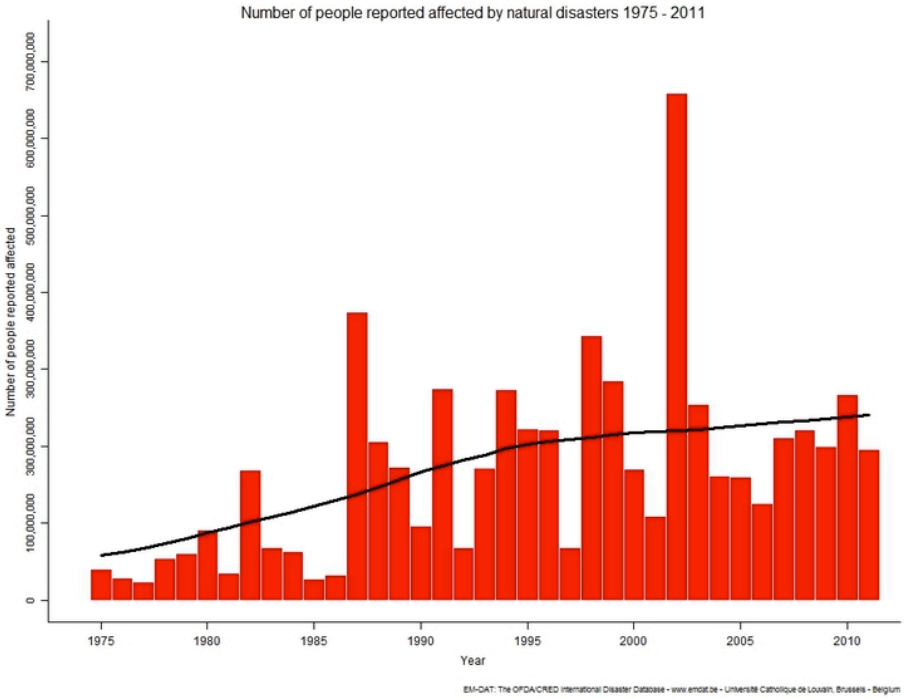
	Projected trends in climate change–related exposures of importance to human health will bring some benefits to health, including fewer deaths from cold, although it is expected that these will be outweighed by the negative effects of rising temperatures worldwide, especially in developing countries		
	Adaptive capacity needs to be improved everywhere; impacts of recent hurricanes and heat waves show that even high-income countries are not well prepared to cope with extreme weather events		
	Adverse health impacts will be greatest in low-income countries. Those at greater risk include, in all countries, the urban poor, the elderly and children, traditional societies, subsistence farmers and coastal populations		

Appendix E: Shocks

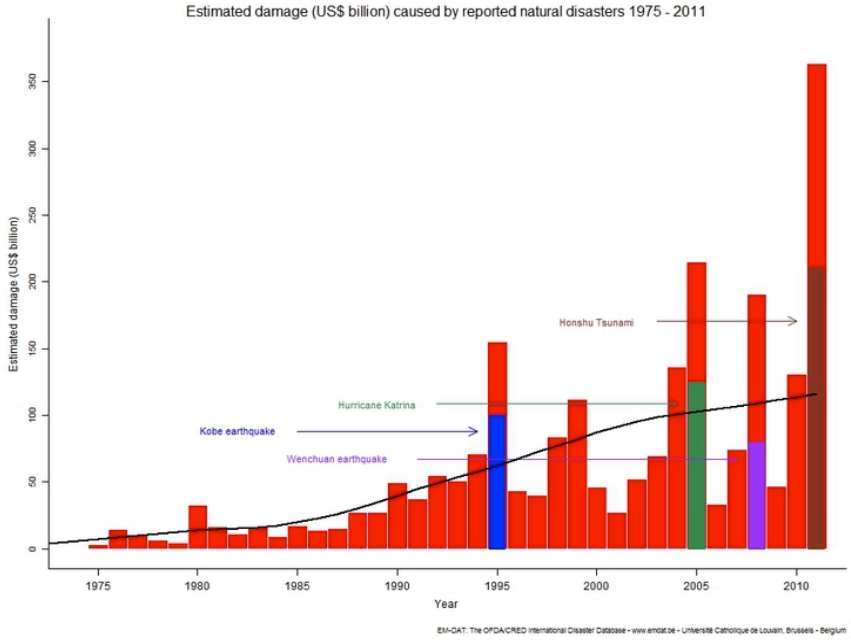
Number of Natural Disasters, 1975–2011



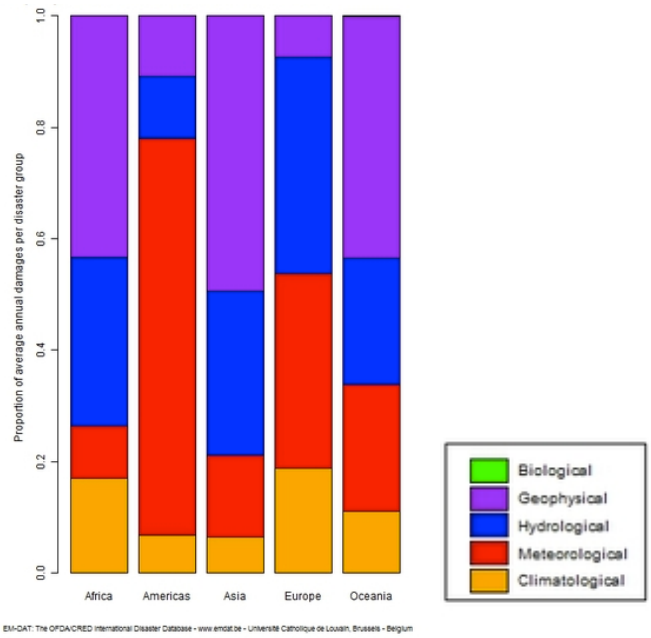
People Affected in Disasters, 1975–2011



Damage Caused by Natural Disasters, 1975–2011



Average Annual Damages ($US billion) Caused by Reported Natural Disasters, 1990–2011



Average Annual Damages ($US billion) Caused by Reported Natural Disasters, 1990–2011