Connecting Climate Change and Health through Global Summitry in an Internationally Diffusing World

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Abstract

The strengthening scientific consensus about the close connection between climate and health has not been reflected at the most relevant functional multilateral organizations of the United Nations. It has been addressed more adequately in the leading informal global plurilateral summit institutions, above all the Group of Eight (G8). Relative to the G8 with its comprehensive agenda, the major intermittent UN summits that have focused on health, the environment or development have lagged in their recognition and response to the climate-health connection and the cures that the scientific consensus shows. This relatively poor performance of UN summitry is not caused by the changing scientific consensus, or by the particular pattern of severe climate and health shocks, which in general should affect both systems equally, particularly the UN one. Rather, the difference depends largely on the characteristics of summitry itself, especially the comprehensiveness, flexibility, assured annual occurrence and compact likemindedness of the G8 summits compared to the subject-specific, organizationally constrained, intermittent, divergent multilateral UN ones. This suggests that the likely advance of the UN in transforming the old Millennium Development Goals into new post-2015 sustainable development goals, with a closer climate-health connection built in, will still lag behind both the growing scientific consensus and the compounding global climate and health shocks, unless G8 and now Group of 20 summits address the challenge in a major and UN-supportive way.

Introduction

The Global Challenge

The challenges of global health are growing in frequency, intensity, scale and scope as well as in in their comprehensiveness, complexity and uncertainty. Issues once conveniently categorized under the singular, siloed headings of the economy, security, trade, food and agriculture, and the environment are now seen as integrally connected to global health and, thus, inherently a part of it (Fidler 2007; Blouin 2007; Hsu and White 2007; Smith and Álvarez 2008; Gostin 2012; Rogelij et al. 2013; Kirton and Guebert 2012). Intellectual property, bioterrorism, food and nutrition, zoonotic disease transmission, migration, water, sanitation and virus sharing are leading cases of this connection. Global health challenges thus now need to be examined not only in a cross-border context but also in cross-sector and cross-disciplinary ones.

Of the many clear and compelling 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, the core of this close, compounding, connection between climate and health is now accepted as fact, despite the many uncertainties and complexities that remain. Yet the current segmented system of global governance is dominated by long-established, siloed system of the United Nations galaxy, with several, separate specialized institutions for climate and for health, national government stakeholders that have separate ministries and agencies for health and the environment, and non-governmental organizations (NGOs) that focus on single environmental or health problems. It thus offers few of the inherent institutionalized connections required to adequately deal with this climate-heath challenge, even at the highest political level where comprehensive visions and creative flexibility abound.

The Argument

The strengthening scientific consensus about the close climate-health connection has not been reflected in the most relevant functional multilateral organizations of the UN. It has been more adequately in the leading informal global plurilateral summit institutions (PSIs), above all the Group of Eight (G8). Relative to the G8 with its comprehensive agenda, the major periodic UN summits that focus on health, the environment or sustainable development have lagged in their recognition and response to the climate-health connection challenge and the cures that the scientific consensus shows. This relatively poor performance of UN summitry is caused less by the changing scientific consensus, or by the particular pattern of severe health and climate shocks, which in general are available equally to both systems and are particularly relevant to the UN one. Rather, the difference depends largely on the characteristics of summitry itself, in particular the comprehensive, flexible focus of the annual informal G8 summits compared to the subject-specific, organizationally constrained, intermittent, hard law UN ones. This suggests that the likely advance that the UN will make in transforming the old Millennium Development Goals (MDGs) into new post-2015 sustainable development goals (SDGs), with a closer climate-health connection built in, will still lag behind both the growing scientific consensus and the compounding global vulnerabilities generated by climate and health shocks, unless G8 and now Group of 20 (G20) summits address the challenge in a major and UN-supportive way.

Strengthening Scientific Consensus and UN Organizational Failure

Scientific Consensus Outside and Inside the Intergovernmental Panel on Climate Change

The scientific community is increasingly convinced that there is a close, compounding, complex climate-health connection in the material 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). Since the 1990s, visible evidence of these direct and indirect climate-health connections — from heat wave deaths, the increasing number and severity of extreme weather and storms, and the increasing spread of infectious vectors — has been abundant and growing, even if some of the specific climate-health pathways and particular impacts, especially at the regional and local level, remain under debate (Haines, McMichael and Epstein 2000; Holmes 2008; Costello et al. 2009; WHO 2009c; Intergovernmental Panel on Climate Change [IPCC] 2007a). Africa is particularly vulnerable to climate-health related problems (Gottwald 2012).

To date, most of the emphasis has been on how climate change affects health. More recently there has been increasing attention to the reciprocal relationship of how health affects climate change (WHO and Health Without Harm 2009; Walpole, Rasanathan and Campbell-Lendrum 2009; WHO 2009e). Research here has focused on the large carbon footprints produced by hospitals, the co-benefits from active transportation and the link between healthy populations and higher greenhouse gas emissions. Much work still needs to be done to explore this health-first side of the climate-health connection. But already it is clear that both issues can serve as a cause (and solution) to the challenges the other confront. Climate and health both can gain from collaboration and both will lose if none takes place (Walpole, Rasanathan and Campbell-Lendrum 2009).

At the intergovernmental level, the scientific case for forging the climate-health connection, and doing so fast and in full, is not in doubt. Soon after the Intergovernmental Panel on Climate Change (IPCC) was established, the comprehensive, complex, direct connections between climate and health have been consistently clear and compelling. Those connections and the World Health Organization (WHO) as a relevant actor were identified as important as early as the IPCC's Second Assessment Report in 1995 (IPCC 1995). Both were identified again in the Third Assessment Report in 2001 (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, Adaption and Vulnerability." The executive summary of Chapter Eight, dedicated exclusively to human health, noted 15 specific climate-health challenges. The IPCC's attention to health has been supported and driven by partnerships and collaboration with various stakeholders, including the WHO, which sits on the IPCC and has published reports on the health risks of climate change since 1990.

Multilateral Organization Failure in Recognition and Response

In the political world, however, the recognition and response of the major multilateral organizations have been limited and late. In sharp contrast to the unified, comprehensive League of Nations system established in 1919, the formal, institutionalized multilateral Bretton Woods–United Nations system of 1944–45 was deliberately designed and created as an incomplete, segmented or siloed system with no centre for coordination or authoritative expansive at the top (Ikenberry 2001). Because the major health and climate actors within the system operate autonomously, as a result of the institutionalized anarchy, most of the responses to this scientifically sound climate-health challenge have been independent. Climate and health actors have both responded, but not in the integrated and collaborative way (WHO 2009d).

The Health Community and the World Health Organization

The health community has increasingly drawn the link, emphasizing how climate change harms human health in many ways (WHO 2009d; Chan 2008). The WHO, the leading international institution dedicated to health, acknowledged the link at an early stage. Some have argued that its initial definition of health suggests that environmental law must seek to protect it (Onzivu 2012; Gostin 2008). The WHO's first available document on this topic, published in 1990, examined the scientific aspects of climate change and its potential direct and indirect effects on health, and concluded with several recommendations for policymakers (WHO 1990).

In 1996 and 2000, the WHO produced additional reports (WHO 1996, 2000). In 2005, it published a factsheet on climate-health links (WHO 2005). In 2008, World Health Day focused on the adverse health affects of climate change and WHO director-general Margaret Chan outlined the five major health consequences of climate change (Chan 2008). On May 24, 2008, the World Health Assembly (WHA) issued resolution 61.19 on climate change and health, urging member states to take action to mitigate the health impacts of climate change (WHO 2008a, 2008b, 2008c, 2008d, 2008e, 2008f). In 2008, the WHO (2008d) also reported that "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."

In 2009, in the lead-up to the Copenhagen Conference on Climate Change in December, the WHO published a brochure and background report on how climate change affects health (WHO 2009a, 2009d). It planned an event to take place on the sidelines of 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).

Furthermore, the WHO has provided expert input on climate change to other agencies, such as the UNFCCC's Subsidiary Body for Scientific and Technological Advice and

Nairobi Work Programme. Thus, the WHO has played an active role in influencing climate change by providing scientific evidence, participating in negotiations and helping draft international environmental laws (Onzivu 2012).

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

Climate actors have also acknowledged the link. In particular, as the leading international agreement on climate change, the UNFCCC and its COPs and Meetings of the Parties to the Kyoto Protocol (MOPs) have sought to govern the link. The overarching, foundational UNFCCC was adopted on May 9, 1992, opened for signature in June 1992 and entered into force on March 21, 1994 (UNFCCC 2013). In this "constitutional" document, the climate-health connection was present from the start. Articles 1 and 4 declared, as the core connecting principle, 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 2008; Kirton and Guebert 2009a).

Since this strong start, however, the recognition of the link in the UNFCCC process has varied, and most recently has declined. A direct link was made in the outcome documents issued at the COPs in 1996, and 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 several key links were identified in COP/MOP outcome documents, including how climate change, extreme weather events and ozone-affecting chemicals caused health problems that were significant, deleterious, adverse and potentially irreversible. Members recognized that developing countries, small island developing states (SIDES), 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 link, parties to the UNFCCC never explicitly recognized the WHO as a relevant international organization, even though it did so for several other UN bodies, such as the Food and Agriculture Organization (FAO) and International Energy Agency (IEA) (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 increased — 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 no attention at all to the climate-health link.

In addition, even when the UNFCCC process has recognized the link, it has had little impact. There has been "increasing concern that international and national environmental law have not been emphasized to advance 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. "With few Conference of the Parties health decisions, limited participation of the health sector, poor reporting and financing of health, health is relegated to the peripheries of both UNFCCC and Kyoto" (Onzivu 2012).

The Promising Performance of the G8 in Recognition and Response

Outside the UN's multilateral organizations, the world's leading plurilateral summit institutions, led by the G8, have governed both health and climate in an increasingly integrated way.

The G8 has governed health and climate change in parallel since 1979 (Kirton and Guebert 2009b, 2009c). In 1997, when the Kyoto Protocol was concluded — with no attention to the link — the G7/8 made the link for the first time (see Appendix A). It returned, again with a single reference in 2003, then with three references in 2005 and then continuously with one to two references each year from 2007 to 2012.

At the start of this sequence, at their U.S.-hosted Denver Summit 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 and did so in unacceptable, harmful ways and required an immediate response.

After an absence of several years, during which time the COP's attention to the link flourished, the G8 returned to the link in 2003, just as the COP emphasis faded (G8 2003). 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). The G8 now identified the specific impacts of climate change on respiratory disease and healthcare costs. In doing so it forged, for its first time, the trilateral climate-health-economy link. The link was absent from the Russian-hosted St. Petersburg Summit in 2006, even though health was one of that summit's priority themes, as climate change had been at the summit the year before.

From 2007 to 2012, however, G8 leaders continuously forged the link (see Appendix B). 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, through reducing malnutrition 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 thus has increasingly acknowledged the link, especially on a continuous basis since 2007. 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).

G8 statements of fact have presented both climate change and health as a reality. Its statements of causation have been entirely on how climate change harms human health, even as the context of the former and the latter, and the causal pathways between the two, have expanded significantly to cumulatively produce a more complex causal map. Its statements of rectitude have drawn from, among other sources, a wide 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.

These statements on the link also suggest the key causes that lay behind. 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, 2005). Shock-activated vulnerability was absent throughout, with the closest reference coming 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 (often referred to as Rio+10), and in 2005 to the UN Millennium Summit of 2000. Afterward, in citing summit outcomes as a cause, the G8 abandoned the UN summit ones, in favour of G8 ones. In 2007 it cited summits of France-Africa and the European Union and Africa, and looked forward to the 2008 G8. In 2008 it cited the G8's 2003 Evian Summit and again looked forward to the next year's summit in 2009. In 2010 it cited the G8's 2009 L'Aquila Summit. In 2011 it cited "previous work by the G8" (G8 2011). The key driver was thus summitry and, after 2005, the summitry of the G8 itself as a self-referential and self-sustaining summit group.

The one anomaly was the declaration from the summit of the Major Economies Meeting on Energy Security and Climate Change (MEM) at the G8 in 2008, where the G8 members were joined by most of the leaders of the G20. Its one paragraph on the climate-health connection noted, in orthodox UN fashion, the singular principle of common but

differentiated responsibilities and the UNFCCC as "the global forum for climate negotiations" (MEM 2008).

Decision Making

An assessment of the climate-health related commitments that G8 members have made from 1975 to 2012 shows six central trends. 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 environmental degradation and climate change on the one hand and human health on the other. Second, the number of climate-health commitments has not increased, despite the growth of scientific research and consensus. Indeed, no commitments were made between 2003 and 2012. Third, there is a bulge between 1996 and 1997 when three commitments were made, almost half of the total overall. Fourth, the development influence from the UN 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 have committed to. Particularly surprising is the lack of congruence between the G8's 2012 Camp David Summit and the 2012 Rio+20 Summit despite the fact they occurred within a period of one month.

UN Health, Environment and Development Summitry

Summitry itself is thus not a solution, for it has its shortcomings even within the informal, plurilateral G8 ones. Moreover, the major UN summits focused on health, the environment or sustainable development have lagged behind in their recognition and response to the linked challenge and cures that the scientific consensus shows.

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 health 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, while 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 took place in the form of the High-Level Meeting on the Prevention and Control of Non-communicable Disease in New York in September 2011. Here the climate-health connection, usually taking the form of the more general environment-health link, appeared in four paragraphs. They took 459 words, or 8.7% of the document overall.

The environment in general was related to health in general in an equal way in all regions and groups of 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 PSIs with a large number of equal members from the ranks of both the very rich and the very poor country. Similarly, specific references to "climate change" and its "effect on the control of prevention of non-communicable diseases" were expressed in fully general, global, universal, inclusive terms.

The statement of fact on climate change specifically portrayed it as posing "increasing challenges" and needing a "prompt and robust" response (UN 2012b). More general, environmental determinants of health were "among the contributing factors to the rising incidence and prevalence" of NCDs.

The statement of causation as reflected in the passages above placed the environment and health as the causes of health harms, in general and for NCDs as a whole. In specifying control or curative measures, however, the NCD high-level meeting did add 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).

Its statement of rectitude consisted of an introductory recollection (in paragraph 10) of 10 previous declarations: three from multi-subject PSIs of a global or regional reach, and the others largely from regional components of the WHO.

This treatment again suggests the key causes that lie behind its substantial (8.7%), general, equal, direct and indirect connection between climate and health. 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, the three (of the four) reminders of past declarations referred to multi-subject PSIs (the Caribbean Community [CARICOM], CHOGM and the SOA).

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

The UN's landmark summits on the environment and development have recognized the climate-health connection in their most authoritative outcome documents in only the smallest and most specialized way.

Rio 1992

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

The Earth Summit's approach took the form of two principles. Principle 1 led with the words that "human beings are … entitled to a healthy and productive life in harmony with nature" (UN 1992). Principle 14 dealt with environmental dumping, declaring 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 principle of environmental dumping in practice implicitly singled out developing countries for special handling. 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.

Understandably for a statement of principles, there was no reference to science, shock-activated vulnerability or international agreements in summit or other forms.

Rio+10: The World Summit on Sustainable Development 2002

At the World Summit on Sustainable Development, which took place in Johannesburg, South Africa, from August 26 to September 4, 2002, references to the climate-health connection reached a record high but were still very limited. At the summit, which focused specifically on the environment, references to the relationship between climate change and health were found in two paragraphs containing 160 words, representing 9.62% of the total number of words in the final political declaration.

The 2002 WSSD summit's report 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 on 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 causes

of ill health, including environmental causes, women and children, vulnerable groups, people with disabilities, elderly persons and indigenous people.

The WHO's director general spoke at the 2002 summit. Among the 16 other organizations represented were the Commonwealth Secretariat, the Council of Europe and the Nordic Council. Non-governmental organizations, such as the International Committee of the Red Cross, also attended the summit.

Rio+20, 2012

The most recent "Rio" summit, the Rio+20 UN Conference on Sustainable Development, was held in Brazil in June 2012. Here 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 overall.

The connection appeared in the specialized section devoted to SIDS. The relevant paragraph began by declaring that they were 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 were 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 came close behind in next sentence. But it came as a parallel concern rather than as 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 as a source of progress rather than a problem that needed to be addressed.

This treatment together explicitly reveals the key causes that lie behind its small, specialized, parallel and unequal configuration. The central cause was shock-activated vulnerability, of a geophysical and even existential sort. But this geographical uniqueness meant 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, 6 helped keep health and climate separated even in 2012, 12 years after their creation.

UN Millennium Summits: 2000, 2005, 2010

At UN summits focused on development in general, with both health and the environment contained within a single set of eight MDGs, the UN has also recognized the climate-health connection, but not in any prominent, reliable and sustained way. Because three of the eight MDGs (4, 5 and 6) are directly, explicitly 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.

The Millennium Summit, 2000

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

The Millennium Development Summit 2005

The second MDG summit in 2005 forged the link, if 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 and one of concern 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 wastes.

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 conscious 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

The most recent MDG summit was held in New York in September 2010. Here the climate-health connection, broadly defined, appeared in only three paragraphs of the outcome document. These paragraphs took only 192 words or just over 1% (1.48%) of the total.

Climate change was presented as a problem that was now a universal problem, but still of particular concern to the special case of developing countries as a whole. 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 equally

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, or the action-inspiring urgency and importance 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).

Its 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 connection made to climate change harming health.

Its statement of rectitude consisted of an affirmation of the principles of the UNFCCC, notably "common but differentiated responsibilities and respective capabilities." It also affirmed the Framework 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. And the third paragraph, in the most direct link refereed to "environmental and occupational health hazards.

This treatment again suggests the key causes that lie behind its still small, specialized, unequal and indirect connection between climate and health. There was no reference to science or shocks as they related either to climate or health. Most strikingly, summitry of the MDG sort had severe limits. To be sure 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.

The Pattern of UN Summitry

Taken together, the climate-health performance of these eight major UN health, environment and development summits show several striking patterns (see Appendix C).

First, there has been no increase in the attention given to the connection between 1992 or even 2000 and 2012. Rather, there have been three spikes evenly spaced over the past 20 years, coming at the start in 1992, in the middle in 2002 and near the end in 2011.

Second, the surges have come from the two environment summits in 1992 and 2002 and the health summit in 2011. They have not come from any of the three development summits, despite the presence of three health MDGs, one environment MDG and a general commitment that all eight MDGs would be advanced in an integrated, holistic way.

Third, the connection has generally moved from being a specialized concern of developing countries to one equally affecting the world at large. Similarly the components of environment/climate and of health that are involved in the connection, and the pathways that link them, have slowly and fitfully become more comprehensive and complex. The facts are generally accepted, but the causation is limited to how climate change harms health, and rectitude remains embedded in international agreements produced by the UN and the often siloed but sometimes sister summits it mounts.

The conscious concept of catalysts recorded in the documents as a spur for attention and action show a strong pattern as well. Shock-activated vulnerability appeared only once, with its two references in 2012. Science also arose only once, with two references in 2005. References to UN summits arose in 2005 with two references and at all the subsequent summits in 2010, 2011 and 2012 with one reference each. References to PSIs appeared only once with the three references in 2011.

Causes: Science, Shocks and Summitry

The poor performance of UN summitry relative to that of the G8 is caused less by the changing scientific consensus or by the particular pattern of severe climate and health shocks than by the characteristics of summitry itself, in particular the comprehensiveness, flexibility, assured annual iteration and like-mindedness G8 summit, relative to the subject-specific, organizationally constrained, intermittent, internally diverse ones in the UN.

In general, both global scientific consensus and global climate and health shocks should have an equal impact on both the UN and the G8 summit-level global governance systems. They should thus spur each to respond to a similar degree, in similar ways at similar times. Moreover, in their specific pathways, scientific consensus and shocks should both have a greater influence on the UN, and thus spur it to respond to a greater extent 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 the WHO is within the UN galaxy as its venerable, central body for health. The G8 has no similarly associated scientific bodies for climate change or for health. Similarly, climate and health shocks should be felt first and most by the highly vulnerable state members that belong to and influence the near universal UN, rather than the world's long most powerful countries that exclusively make up the G8. It is thus a puzzle why the G8 has responded faster, and more fully at the summit level to the climate-health connection than the UN system has. The answer lies in key differences in the characteristics of summitry between the two systems, notably in comprehensiveness, flexibility, iteration and commonality

Scientific Consensus from the North to the South

As the analysis above shows, the scientific consensus on the connection between climate and health 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, being notably absent from the peak summit on NCDs in 2011, as well as Rio in 1992 and Rio+20 in 2012. While the G8 recognized science first, both the G8 and the UN shared the 2005 moment, and the absence 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). However, with the tentative exception of 2012, such climate shocks have never served as a conscious catalyst and proximate pathway in the G8. At the UN they also appeared only in 2012, at Rio+20, but were absent from the UN's NCD High-Level Meeting in 2011, Rio 1992, and the MDG summits in 2000, 2005 and 2010. This suggests that only by 2012 had climate shocks become so severe that they simultaneously caught the attention of both the G8 and UN summits and moved them to recognize and respond to the link, especially at the UN.

Summitry: Comprehensiveness, Flexibility, Iteration, Commonality

It is the differences in the characteristics of summitry between the G8 and the UN that 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. This cadence started with references in 2003 to the UN's World Summit on Sustainable Development of 2002 and in 2005 to the UN Millennium Summit of 2000. Afterward, in citing summit outcomes as a cause, the G8 abandoned the UN summit ones, in favour of G8 ones. In 2007 it cited summits of France and Africa and the European Union and Africa, and looked forward to the 2008 G8. In 2008 it cited the G8's 2003 Evian Summit and again looked forward to the next year's summit in 2009. In 2010 it cited the G8's 2009 L'Aquila Summit. In 2011 it cited "previous work by the G8" (G8 2011). The key driver was thus summitry and, after 2005, the summitry of the G8 itself as a self-referential and self-sustaining summit group.

As a comparable catalyst 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 level, 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 PSIs of 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 two of its own in 2005 and, finally, heavily on other PSIs in 2011. Throughout, it chose to cite formal ministerial-level agreements from the UN's organizational silos rather than summitry, even of its own increasing UN summits.

Behind these conscious, communiqué-cited catalysts lie the deeper causes contained in the different characteristics of summitry of the G8 and UN. The G8's comprehensive agenda and informal flexibility make it easier to forge links between climate and health and make it easier to refer to it as authority. The G8's annual iteration, relative to the UN's intermittent and ad hoc ones, gives the G8 more opportunities to refer to its own summits from the recent past and those that it knows 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 with the climate-health consensus and commitments it has forged in an accountable manner.

Conclusion: Shaping the 2015 SDGs

This analysis shows that the specific characteristics of global summitry, rather than scientific consensus or shocks, are the key causes of the differing performance of G8 and UN summits in forging the link between climate and health. The greater comprehensiveness, flexibility, annual assured iteration and internal likemindedness of the smaller G8 summits have led to a greater performance on its part in governing that climate-health link.

This analysis suggests that the likely advance that the UN system and its summits will make in transforming the old MDGs into new sustainable development goals with a closer, built-in connection between climate and health will still lag behind both the compounding shock-driven global challenge and the growing scientific consensus, unless G8 and now G20 summits address the challenge in a major way that supports the UN. Thus the G8, starting with its Lough Erne Summit in June 2013, needs to rediscover its recently central health agenda and add it to ongoing climate change ones. Similarly, the broader G20 PSI, starting with its St. Petersburg Summit in September 2013, should launch a serious health agenda and link it to its useful work on climate change control. Finally, the BRICS summit of the leaders of Brazil, Russia, India, China and South Africa should also re-discover its once substantial heath agenda and connect it to its continuing work on climate change. It is deeply paradoxical that now that these three leading global PSIs deal with climate change in a continuous and useful way, they have abandoned the older, once central concern with human health, and thus its link with climate change.

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Appendix A:
Summitry: Health-Climate in the G8 Leaders' Documents, 1975-2012

Compiled by Rozalind Theriault, March 2013

Year	Total Health-CC Mentions	Total Health-CC Sentences	Total Health-CC Paragraphs
1975	0	0	0
1976	0	0	0
1977	0	0	0
1978	0	0	0
1979	0	0	0
1980	0	0	0
1981	0	0	0
1982	0	0	0
1983	0	0	0
1984	0	0	0
1985	0	0	0
1986	0	0	0
1987	0	0	0
1988	0	0	0
1989	0	0	0
1990	0	0	0
1991	0	0	0
1992	0	0	0
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	1	1	1
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	1	1	1
2004	0	0	0
2005	3	2	3
2006	0	0	0
2007	1	0	1
2008	2	1	2
2009	1	1	1
2010	1	0	1
2011	2	2	2
2012	2	2	2
Total	14	10	14
Average	37%	26%	37%

Notes:
The chart accounts for all official documents. Only documents with an English version were included in the calculations.

*"Total CC-Health Mentions" refers to the number of times climate change and health, or cognate terms of climate change and health, were mentioned simultaneously in the official documents for the year specified. The words are calculated by sentence and paragraph because the sentence/paragraph is the unit of analysis.
*"Total CC-Health Sentences" refers to the number of sentences that climate change and health, or cognate terms of climate change and health, were mentioned simultaneously in the official documents for the year specified.
*"Total CC-Health Paragraphs" refers to the number of paragraphs that climate change and health, or cognate terms of climate change and health, were mentioned simultaneously in the official documents for the year specified.

The following is a catalogue of passages dealing with health-climate change in the written documents issued by G8 Leaders' at their annual summits from 1975 to 2012. Key subjects are highlighted below. Subjects that are not included here have also been highlighted. These subjects have been captured in other issue areas to which they are better suited.

Inclusions:
Climate change; global warming; Kyoto; emissions; greenhouse gas (carbon dioxide, CO2); carbon; carbon capture and storage (CCS); carbon sequestration leadership forum (CSLF); Gleneagles Plan of Action; health; health systems; infectious diseases; public health; diseases; respiratory problems

Exclusions:
Energy efficiency; clean energy; nuclear energy; alternative energy (all captured in the "energy" catalogue); better life; health as an adjective to describe something other than health as an issue area itself (ex. healthy economy)

Coding Rules:
The unit of analysis is the sentence/paragraph.
Need a direct reference to health-climate change or a cognate term.
Cognate or extended terms can be used without a direct reference to "health-climate change" if they have previously been directly associated together in Summit communiqué history.

Appendix B:
G8 Climate-Health Commitments, 1975-2012

Julia Kulik, March 13, 2013

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

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.

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 and GHG [greenhouse gas] emission reduction efforts, comprehensive actions to reduce these pollutants.

Appendix C:
Climate-Health Conclusions in Statements from UN Summits on the Environment, Development and Health, 1992–2012

Julia Kulik, March 13, 2013

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

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.

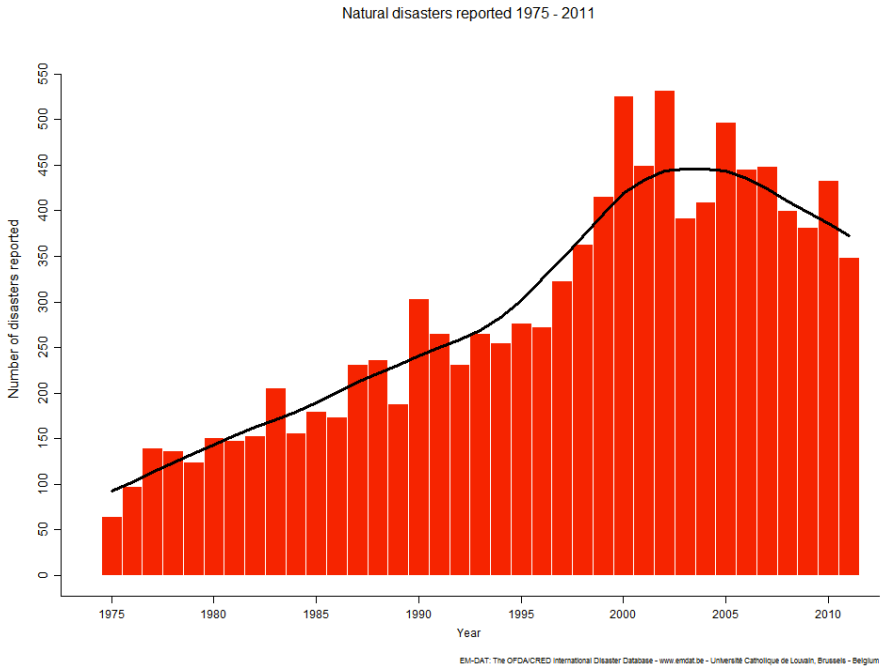
Appendix D:
Health-Climate Challenges Identified by the Intergovernmental Panel on Climate Change, by Varying Confidence

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		

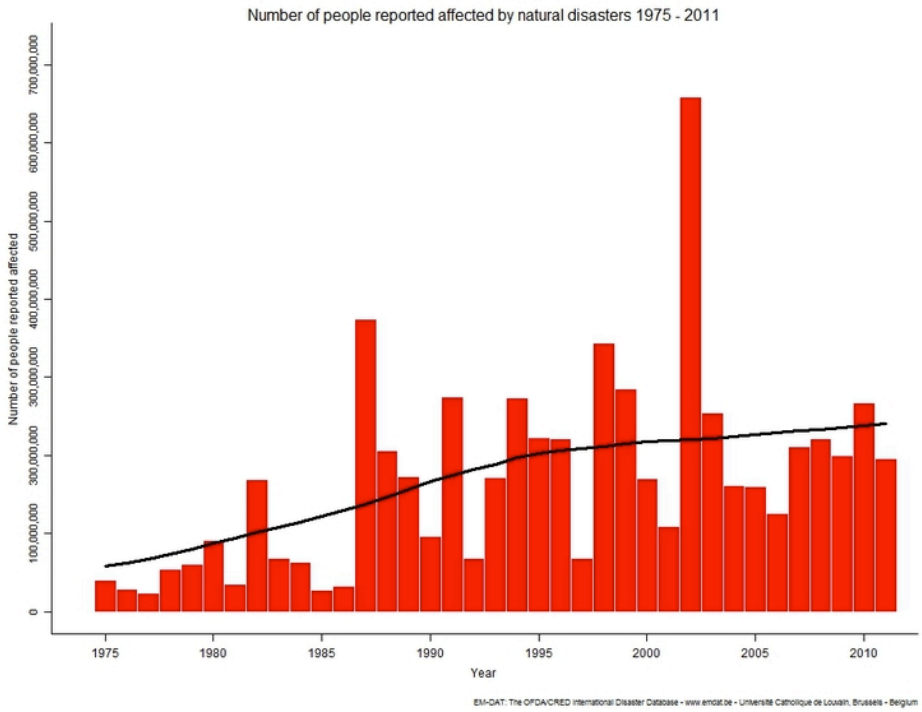
	Projected trends in climate change–related exposures of importance to human health will bring some benefits to health, including fewer deaths from cold, although it is expected that these will be outweighed by the negative effects of rising temperatures worldwide, especially in developing countries		
	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

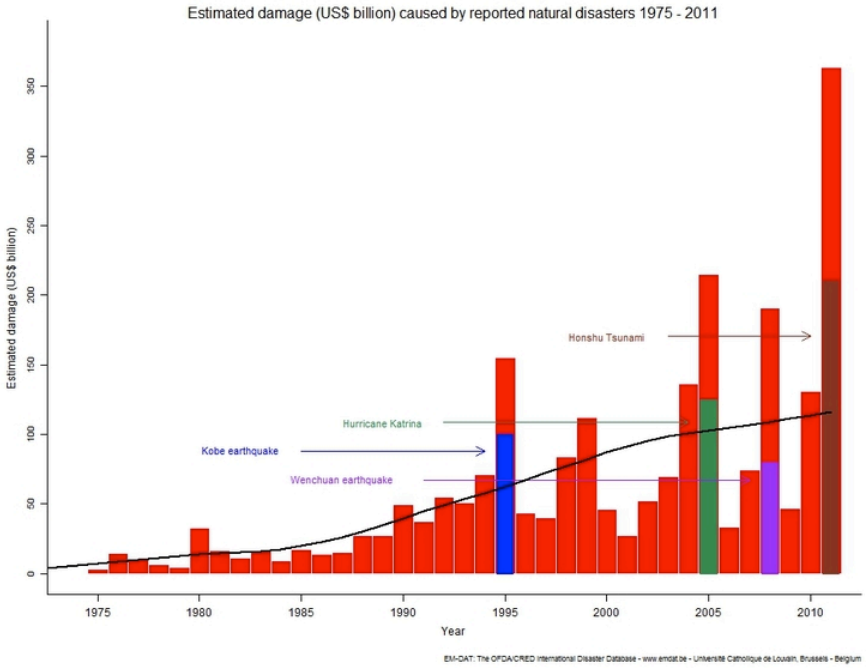
Number of Natural Disasters, 1975–2011



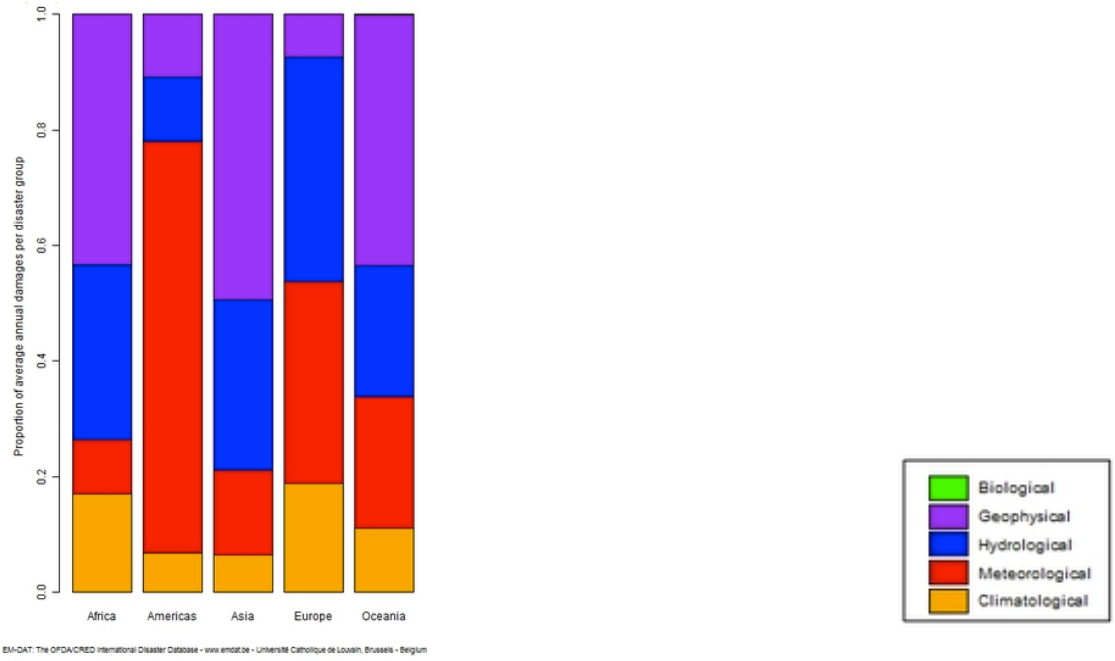
People Affected in Disasters, 1975–2011



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