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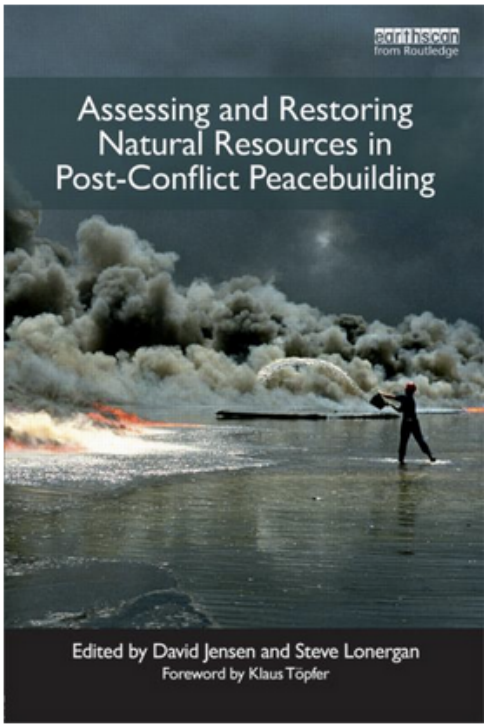

Peacebuilding and adaptation to climate change

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Peacebuilding and adaptation to climate change

Richard Matthew and Anne Hammill

Since the early 1990s, peacebuilding has matured into a complex capacity-building process through which conditions amenable to sustainable development are created or recreated in post-conflict societies. Contemporary peacebuilding entails the design, sequencing, and implementation of diverse capacity-building strategies that provide basic security and encourage socioeconomic recovery and growth, and that also address the conditions, attitudes, and actions associated with past violent conflict in order to prevent its recurrence (UNEP 2009). Various United Nations agencies play a critical role in this process, as do nongovernmental and civil society organizations, aid agencies and development banks, private businesses, and national governments. While coordination is a daunting challenge and there is no single recipe for success, empirically grounded guidance notes and best practices are now available to focus and guide efforts, and there are many examples of operations widely regarded as successful, such as Liberia, Namibia, Rwanda, and South Africa (Jeong 2005).

Since the release of the *Fourth Assessment Report* of the Intergovernmental Panel on Climate Change, in 2007, climate change has come to be regarded as both an immediate and long-term threat to sustainable development and an amplifier of violent conflict.[1] Changes in precipitation patterns, rising sea levels, and increases in the frequency and intensity of extreme weather events are already undermining livelihoods, reducing the productivity of key economic sectors, disrupting human health, and affecting settlement and migration patterns (IPCC

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[1] See Brown and Hammill (2007); Campbell (2008); CNA (2007); German Advisory Council on Global Change (2008); and Stern (2006).

2007). Little research has been carried out on climate impacts in fragile post-conflict situations. However, there is reason to believe that such impacts add considerable stress to the governance structures and other institutions that provide basic services and protect people from injury and loss, thereby weakening people's confidence in the social order. Additional challenges posed by climate impacts include increased displacement, reduced agricultural outputs, and a heightened risk of conflict recurrence (Smith and Vivekananda 2009). Concerns that climate change has and will continue to (1) contribute to violent conflict and (2) obstruct sustainable development have important implications for peacebuilding.

Climate change could affect peacebuilding in at least two ways. First, climate impacts could undermine existing peacebuilding operations by making the transition to sustainable development more difficult and costly. For example, climate change may damage the natural resource base upon which many post-conflict societies rely for economic recovery and sustainable livelihoods (UNEP 2009). This is especially true in agricultural economies, which are typical in peacebuilding countries. In Sierra Leone, for example, over 70 percent of employment is in the natural resource sector, mainly in agriculture (UNEP 2010). Shifting cultivation is practiced throughout Sierra Leone, and crops are rain fed. Although data are limited, significant anecdotal evidence collected during five field missions between 2008 and 2010 suggests a typical pattern of climate effects, including higher-than-normal variability in rainfall and atypical flooding and drought, all of which add stress to the country's most important source of livelihoods (Ogundeji 2010).

Dwindling resources may also increase competition and tensions in volatile settings. Again, in Sierra Leone, where the population obtains some 75 percent of its protein from fish, the country's extensive coastal fisheries will be affected as climate change modifies water temperature and currents (FAO n.d.). And changing climate conditions (in particular, more frequent and intense extreme weather events) are overwhelming institutional capacities even as they are being built up, increasing demands for disaster response and diverting scarce capital away from other priorities, such as rebuilding infrastructure. To the extent that climate change intensifies processes that have the potential to undermine peace—by, for example, increasing population displacement or causing further setbacks in development, it risks fostering conflict relapse. Even if one is skeptical about the contribution of climate change to conflict recurrence, it clearly has the potential to undermine capacity building and slow or halt the transition to sustainable development.

The second way that climate change may affect peacebuilding is by requiring a shift in peacebuilding approaches and priorities, to enable fragile societies to better cope with the additional stress of climate impacts. At a minimum, this would mean the more systematic use of climate data to inform early peacebuilding decisions (e.g., regarding land use planning, resource prospecting, and investment) that commit post-conflict countries to certain longer-term development pathways. It would also mean greater emphasis on early warning or on tools and

strategies to reduce disaster risk.[2] The authors believe, however, that a more comprehensive integration of climate change adaptation into the pillars of peacebuilding is desirable, and may be essential for a transition to sustainable development. To this end, the chapter examines the challenge of integrating peacebuilding and climate change adaptation into a unified approach to support the transformation of post-conflict states.

The chapter is divided into five major sections: (1) a general discussion of peacebuilding; (2) a consideration of the relationship between peacebuilding and climate change; (3) a discussion of climate change adaptation; (4) a description of potential strategies for integrating peacebuilding and climate change adaptation; and (5) a brief conclusion. Throughout, examples from field research in post-conflict countries in Africa (the Democratic Republic of the Congo, Rwanda, and Sierra Leone, in particular) are used to illustrate the discussion.

PEACEBUILDING

The end of the Cold War provided an opportunity to revive elements of the UN's mission that had been severely compromised by decades of ideological and military rivalry between the United States and the Soviet Union, countries that had veto power in the United Nations Security Council (Brahimi 2007; Paris 2004). In 1992, in response to this opportunity, UN Secretary-General Boutros Boutros-Ghali published *An Agenda for Peace* (UNSG 1992), a report that stimulated interest in peacemaking, peacekeeping, and peacebuilding on the part of academics, policy makers, and practitioners around the world. This interest was remarkably productive: in 2003, for example, Jacob Kreilkamp argued that in a single decade, the "U.N. peacekeeping work has undergone a richly documented transformation" (Kreilkamp 2003, 619).

Although there is no single definition of peacebuilding that is used consistently within the UN, let alone beyond it, peacebuilding is often defined as an element in a broader process.[3] The first step in this process, peacemaking, generally refers to a diplomatic effort that may involve UN, governmental, and nongovernmental actors, and is designed to bring together the various parties that are engaged in violent conflict so that they can explore—and, ultimately, agree to implement—a peace agreement that will end hostilities. This agreement, in turn, creates the setting for peacekeeping, which is typically a multilateral process that involves dispatching military forces to a conflict zone: (1) to monitor, and

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[2] Similarly, the presence of conflict risks in an area vulnerable to the impacts of climate change may call upon societies to confront climate impacts in a different way, so as to reduce the likelihood of conflict.

[3] Editors' note: The conceptual framework for the post-conflict peacebuilding process presented in this chapter is similar to, but distinct from, the framework articulated earlier in this book. More details can be found in the introductory chapter, in the box titled "What Is Peacebuilding?", and in the introduction to Bruch et al. (2012).

perhaps assist with, the implementation of the peace agreement; (2) to deter hostile parties from resorting to violence; and (3) to provide safe spaces for nonmilitary activities to begin.

Peacebuilding, the third phase of the process, overlaps with peacekeeping. The 2004 Utstein study of peacebuilding, whose findings are reflected in the conceptualization of peacebuilding published by the Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD) in 2008, provides a useful overview of the main elements of peacebuilding (OECD/DAC 2008).[4] The Utstein study—carried out by the International Peace Research Institute, Oslo—examined 336 peacebuilding projects implemented over a ten-year period by the four Utstein governments: Germany, the Netherlands, Norway, and the United Kingdom (Smith 2004). In both the OECD and the Utstein reports, peacebuilding is structured into four mutually reinforcing pillars of activity.[5]

Pillar 1, the social, economic, and environmental dimension, focuses on the socioeconomic drivers of conflict, such as wealth disparities, marginalization of particular social groups or geographic areas, environmental degradation, and competition over natural resources. Activities under this pillar include repatriating and reintegrating refugees and internally displaced persons (IDPs), and generating employment through investments in the productive sectors of the economy. Attention is also given to constructing and repairing infrastructure; restoring and reforming key government functions, such as water supply and sanitation; and developing and providing basic public services, such as education and health care. To further strengthen this pillar, government agencies and other institutions seek international assistance to build technical and financial capacity.

Pillar 2, the governance and political dimension, is concerned with consolidating the legitimacy, capacity, and effectiveness of key institutions. Activities under this category include state building (that is, taking measures to reconstruct and strengthen political authority and administrative capacity) and capacity building for civil society. Various democratizing initiatives—such as organizing elections, developing power-sharing structures, and instituting participatory processes—are undertaken. Programs fostering transparency, accountability, and anticorruption programs are also implemented.

Pillar 3, the security dimension, focuses on the protection and provision of state and personal security. Security is typically achieved through programs that support disarmament, demobilization, and the reintegration of former combatants

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[4] As defined on the web site of the U4 Anti-Corruption Resource Centre, the Utstein Group "is a group of Ministers responsible for Development Co-operation, working in a concerted way to drive the development agenda forward, focusing on implementing the international consensus. . . . The 'core group' consists of the respective Ministers of Germany, the Netherlands, Norway and the United Kingdom" (U4 Anti-Corruption Resource Centre 2002).

[5] The description of the four pillars is based on OECD/DAC (2008) and Smith (2004).

into local communities; programs may also be developed to clear mines and other unexploded ordnance, and to control access to small arms. Security sector reform, another key component of this pillar, involves rebuilding and improving the security and justice apparatus, including a country's military, police, judiciary, and penal services.

Pillar 4, the truth and reconciliation dimension, is designed to encourage dialogue, peaceful resolution of disputes, healing, and justice. Often, an important element of this pillar is to make available precise details of what happened. Exhibitions, memorials, documentaries, and other public displays may be created, archives may be opened to the public, and opportunities may be created for individuals to confess their roles and seek the forgiveness of their communities.

These pillars of peacebuilding are not monolithic. Within each pillar, the priorities and needs vary throughout a society, and it is essential to carefully consider and manage both differences and continuities within and across national and subnational levels of political, economic, and social organization. Post-conflict Sierra Leone, for example, has given considerable emphasis to the reform of the mining and minerals sector, partly because of the attention focused on conflict diamonds during the 1991–2002 conflict.[6] To address the connection between mining and conflict, the national government has worked to reform the governance of the mining sector (pillar 2), negotiating new concession agreements with foreign investors and making the mining sector a prototype for vastly improved accountability, transparency, and participation. Outside Freetown, Sierra Leone's capital, the focus is more on the sector's socioeconomic value (pillar 1). Communities that are adjacent to mining operations typically have a list of specific concerns and priorities, such as employment opportunities, compensation, environmental impacts, displacement, and the provision of community services (UNIPSIL 2009).

Part of the peacebuilding effort has focused on managing unrealistic expectations about the benefits that would flow from this sector after the conflict, and on building support for the strengthening of other sectors of the economy.[7] Many communities believe that they have not received real benefits from the mining sector since the end of the conflict, and are therefore suspicious about the real intentions of the government's reform efforts. In a contentious sector like mining and minerals, it is perhaps inevitable that some communities will assume that reform initiatives unfolding in the capital are providing cover for new modes of

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[6] As defined by the United Nations, "conflict diamonds are diamonds that originate from areas controlled by forces or factions opposed to legitimate and internationally recognized governments, and are used to fund military action in opposition to those governments, or in contravention of the decisions of the Security Council." (UN n.d.)

[7] The statements in this paragraph are based on information gathered by Richard Matthew—who, as a member of the United Nations Environment Programme's Expert Group on Conflict and Peacebuilding, participated in two UN peacebuilding missions to Sierra Leone.

corruption. Moreover, regardless of its intentions, a national government that is in need of capacity building will never be able to satisfy all of the urgent post-conflict needs of its people.

Given the tension between the desire to channel limited resources toward capacity building and the desire to respond to immediate needs, much of the success of peacebuilding depends on negotiations among various stakeholders about the following issues:[8]

- What are the country's priorities within each pillar and at each level of government (including local, regional, and national).
- How these priorities can be welded into a viable peacebuilding plan that can guide action for three to five years.
- How to mobilize external funding for elements of the plan.

These negotiations must occur within in a complicated context:

- The post-conflict society may be fearful, suspicious, and deeply divided.
- Stakeholders may have to work with a government that is corrupt.
- Negotiators may face pressure from peace spoilers who have found ways to benefit from conflict and lawlessness.
- Negotiations may be complicated by insufficient data, which can introduce uncertainty into planning and decision making.
- Negotiations may be undermined by destabilizing regional dynamics, especially where there are urgent humanitarian needs.

These conditions have rendered peacebuilding in Sierra Leone extraordinarily difficult; as a consequence, the five-year plan that was in place at the time of writing was the product of seven years of observation, discussion, projects, and experiments in peacebuilding.

PEACEBUILDING AND CLIMATE CHANGE

As understanding of peacebuilding has evolved since 1992, so has the grasp of the dynamic and interactive variables that contribute to insecurity and conflict. An important part of the post–Cold War rethinking of peace and security has been the increasingly sophisticated analysis of environmental change as a cause (and symptom) of insecurity.[9] A growing body of literature now explores the many pathways through which environmental degradation and resource depletion

[8] Stakeholders include the government, civil society groups and nongovernmental organizations, UN agencies, donors, and private investors.

[9] See Barnett (2001); Matthew, Halle, and Switzer (2002); Conca and Dabelko (2002); and Hammill et al. (2009).

threaten human well-being—and even survival—as much as, or even more than, the threat of military aggression.[10] This threat is especially worrisome for developing countries, where the link between the availability of, or access to, ecosystem services and human well-being is generally more direct,[11] governance is weak, and the capacity to deal with stresses is limited. Indeed, for these societies—and especially for the more marginalized and disadvantaged groups within them—environmental degradation and scarcity mean a greater chance of becoming further impoverished and being made more vulnerable to shocks and disruptions such as disease, famine, extreme weather, and market collapse. In some instances, protracted vulnerability and insecurity can become grounds for insecurity in the more traditional sense: open violent conflict.

The latest iteration of efforts to examine the link between human security and environmental change involves examining the effects of climate change on security.[12] Expressing a view that is in keeping with much of the literature on this topic, *World in Transition: Climate Change as a Security Risk*, a report published by the German Advisory Council on Global Change, states that "climate change will overstretch many societies' adaptive capacities within the coming decades" (German Advisory Council on Global Change 2008, 1). Similarly, CNA's 2007 report, *National Security and the Threat of Climate Change*, envisions a future in which "climate change acts as a threat multiplier for instability in some of the most volatile regions of the world" and fosters "tensions even in stable regions" (CNA 2007, 6–7). The findings of these and many other assessments were carefully synthesized in a 2009 report prepared by Achim Maas and Dennis Tänzler, who conclude that "climate change is first and foremost a challenge for development and individual or human security, which could halt or reverse developmental achievements and threaten livelihoods" (Maas and Tänzler 2009, 3). Maas and Tänzler also note the "potential impacts of climate change on the existing (armed) conflicts and unstable regions or the potential for emerging conflicts and zones of turmoil" (Maas and Tänzler 2009, 3).

In a 2007 report, Dan Smith and Janani Vivekananda argue that there are "46 countries—home to 2.7 billion people—in which the effects of climate change interacting with economic, social and political problems will create a high risk of violent conflict" (Smith and Vivekananda 2007, 3). It is not certain, of course, that climate change will make conflict more intractable or introduce new conflicts

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[10] See Homer-Dixon (1999); Deudney and Matthew (1999); Bannon and Collier (2003); Collier (2000a, 2000b); Conca and Dabelko (2002); and German Advisory Council on Global Change (2008).

[11] The term *ecosystem services* refers to the transformation of natural assets into things that humans value. An example is the fact that fungi, worms, and bacteria transform sunlight, carbon, and nitrogen into fertile soil. See Ecosystem Services Project (n.d.).

[12] See Brown and Crawford (2009); Brown and Hammill (2007); Campbell (2008); CNA (2007); German Advisory Council on Global Change (2008); Rogers (2010); and Stern (2006).

into states that are fragile, at war, or in a post-conflict phase. Climate change impacts may be largely invisible in areas where misery and violence are already acute. Furthermore, it is at least conceivable that climate change could create enormous pressure to cooperate and take action, which could generate resources for fragile and post-conflict states and impart a sense of shared fate in vulnerable and fractious areas such as South Asia. It is also likely that in some cases, climate change will introduce new opportunities for settlement and new livelihoods, although current wisdom suggests that this is more likely in places like Canada and Siberia than in the arc stretching from West Africa through the Middle East and into South Asia, where the majority of contemporary violent conflict is located. Thus, insofar as climate change is expected to threaten development efforts and to amplify or create conflict risks, peacebuilding needs to incorporate climate change adaptation.

CLIMATE CHANGE ADAPTATION

Adaptation is a socioecological process of adjustment to new or modified circumstances.[13] Within the context of climate change, adaptation is understood as actions that people take in response to, or in anticipation of, changing climate conditions, in order to reduce adverse impacts or to take advantage of opportunities (Tompkins and Adger 2003). The need for, type, and scale of adaptation depend on the kind of change taking place and on the vulnerability of people and natural systems to this change. Vulnerability in this context refers to both a system's exposure to disruptive shocks and trends and to its ability to prepare for, cope with, and recover from the impacts of such shocks and trends. Thus, adaptation has a temporal aspect: human systems can be adjusted in anticipation of change or as a reaction to its consequences.

The research highlights two general approaches to decision making about anticipatory adaptation: a top-down approach uses information about future climate conditions to identify and quantify impacts on different ecosystems and economic sectors, which is then used as a basis for devising adaptation options. A bottom-up approach looks at historical and current climate variability and existing strategies for coping with this variability, and determines how existing strategies might be modified to take account of climate change. The bottom-up approach has the advantage of not relying on elaborate climate projections, which are fraught with uncertainty and limited in their depiction of social interactions and capacities—both of which are important determinants of vulnerability. But the bottom-up approach also carries the risk of incorrect extrapolations based on current or historical conditions, which could lead to maladaptation. The ideal approach draws from both options, allowing decision makers to develop strategies that address current vulnerabilities and development priorities, while trying

[13] This section of the chapter is informed by McGray, Hammill, and Bradley (2007).

to ensure the long-term sustainability of such strategies through a basic understanding of future projections. This hybrid approach to adaptation, which draws from multiple data sources (historical records, current observations, and future projections) and tries to reconcile different timelines, is often referred to as the climate risk management approach (UNDP 2002).

Adaptation can involve a wide range of policies, decisions, and activities implemented at different scales, from a farmer's decision to shift crop varieties, to a village-level malaria awareness campaign, to a municipal plan to expand a storm drainage system, to a national policy to strengthen and expand community-based response to forest fires. These examples are within the purview of traditional development programming, however. The question is, what exactly distinguishes adaptation from traditional development?

The adaptation continuum proposed by Heather McGray and colleagues provides a useful framework for describing the range of possible climate change adaptation activities and how they relate to traditional development (see figure 1) (McGray, Hammill, and Bradley 2007). The continuum features four sequential but overlapping areas of focus for adaptation efforts. At the far left are the more familiar development activities that reduce vulnerability to an array of development stressors, and at the far right are activities designed specifically to reduce vulnerability to the known or anticipated impacts of climate change.

The purpose of this continuum is to demonstrate that climate change adaptation includes a wide range of decisions and activities. Even those development activities that fall on the left side of the spectrum are forms of adaptation: although they appear to have little relation to the specifics of climate change, they build resilience and capacity to manage stress in general, including climate-related stress. Thus, an assessment of current and future climate-related vulnerabilities, and of the range of options for reducing them, may still lead to the adoption of familiar development policies and activities. However, adopting familiar development activities without considering climate issues risks fostering maladaptation—that is, leaving people more vulnerable to climate-related hazards, especially over the longer term, and thereby undermining or reversing development gains.

For example, in post-conflict Rwanda, in the years immediately after the conflict, the pressure of settling millions of IDPs and returning refugees shortened the government's time horizon for planning. As a result, people were settled in protected forest areas and allowed to cultivate steep hillsides: no attempt was made to integrate climate risk management into peacebuilding.[14] On the basis of numerous discussions with officials, it appears that the risks associated with these new settlements may have been underestimated.[15] The government is now

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[14] In some cases, moreover, people settled wherever they could find space, leaving the government to cope with a fait accompli.

[15] Personal communication, Rwandan officials, Kigali, August 2007.

Figure 1. Climate change adaptation continuum

1	2	3	4
Addressing the drivers of vulnerability	Building response capacity	Managing climate risk	Confronting climate change
Reducing poverty, addressing conditions that make people susceptible to harm from all types of stressors, not just climate related.	Laying the foundation, setting up systems for problem solving and more targeted action.	Using climate information in decision making to reduce negative impacts, maximize positive impacts.	Almost exclusively addressing impacts of climate change; targeting climate risks outside of historic climate variability; benefits are realized only with climate change.
For example, literacy, women's rights, HIV/AIDs.	For example, planning and monitoring processes, communications structures, natural resource management practices.	For example, cropping practices, climate proofing infrastructure.	For example, relocation of communities due to address rise in sea level; management of glacial lake outburst floods.[a]

Source: Adapted from McGray, Hammill, and Bradley (2007).
a. Glacial lake outburst floods are caused by the release of water that had been held back by a glacier or a moraine.

attempting to move some people from fragile environments into new villages, but the process has not been easy.

Today, Rwanda is frequently subject to torrential rains—which the Stockholm Environment Institute describes as a possible example of climate change—displacing communities, creating costly humanitarian demands, washing away vast quantities of topsoil, and threatening the long-term productivity of the agricultural sector (Downing, Watkiss, and Dyszynski 2010). There is little climate resilience at any level of Rwandese society, and no obvious way to reduce the risk of more frequent and severe climate-related disasters in the years ahead.[16] The lesson being learned in Rwanda and elsewhere is that information on climate impacts should inform peacebuilding, even if the activities in question appear to be familiar; what is new and additional is the assessment of risk that goes into robust designs that will enhance sustainability and have an overall development impact.

[16] See UNEP (2011).

INTEGRATING PEACEBUILDING AND CLIMATE CHANGE ADAPTATION

Peacebuilding is a fairly complex and evolving process that has not always delivered on its goals. Would integrating climate change adaptation with peacebuilding strengthen the process? Would such integration be straightforward? Finally, when climate change adaptation has faced significant obstacles even in stable countries, one might ask whether it would simply add another layer of complexity—and more trade-offs to negotiate—to post-conflict situations, where so many factors work against against cooperation. As a first step toward answering these questions, this section considers the opportunities and challenges associated with integrating climate change adaptation into the four pillars of peacebuilding discussed earlier.

Measures within the security pillar focus on bringing stability to post-conflict societies and reducing the risk of conflict relapse. The reconciliation pillar addresses community healing, justice, peaceful means of dispute resolution, and reparations. Opportunities to integrate climate change adaptation into either of these domains are limited. There may be some possibilities in the area of reintegration, however, which typically falls under the security pillar and involves settling soldiers and providing them with new livelihoods. For example, after the conflict in Sierra Leone ended in 2002, over 70,000 rebels were effectively disarmed and demobilized (Kaldor and Vincent 2006). The reintegration has proven challenging, however—and as of this writing, unemployment and underemployment were serious problems, especially among youth. As evidence mounts that Sierra Leone's agricultural sector, which is based on shifting, rain-fed cultivation, is unsustainable and inadequate for its growing population, and that the country is vulnerable to climate change impacts, it is becoming clear that job creation programs are essential to managing the security risks associated with large numbers of unemployed youth (UNEP 2010).

With respect to the governance pillar, one way to integrate climate change adaptation into peacebuilding is to assist the new government to enhance its capacity for managing climate risk. For example, functioning meteorological services could support the collection and analysis of climate data—which could, in turn, help to establish early-warning systems to prepare for, and minimize, the impact of events such as storms, floods, disease outbreaks, and famine.[17] Measures that encourage governments to create adaptation-related ministerial and departmental posts, establish interdepartmental coordination units, take a long-term perspective, and are flexible in planning and policy development can further develop adaptive capacity and encourage wider participation. Such activities would likely fall within category 2 ("building response capacity") on the adaptation continuum.

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[17] One reason that Rwanda, for example, is poorly positioned to manage climate risk is that the collection of weather data virtually came to a halt during the 1994 genocide and has never been fully restored. Consequently, the country lacks the necessary data to set priorities and optimize preparedness in this area.

The socioeconomic development pillar offers the greatest opportunities to integrate climate change adaptation into peacebuilding. In Rwanda, for example, where refugees and IDPs numbered over 2 million in 1994, many families were resettled in marshes and steep hillsides, increasing their exposure to climate-related hazards such as flooding and landslides (Cutts 2000). Although there is typically enormous pressure to accommodate refugees and IDPs as quickly as possible, it is in the country's long-term interest to ensure that even the most urgent actions reflect current understanding of climate change: allowing settlements on steep terrain, in floodplains, or on coastlines, for example, can create costly problems that will persist far into the future.

Another immediate need is for infrastructure. Inevitably, post-conflict societies want functional transportation, communication, and water and energy systems to be the focus of government policy and donor support. Climate proofing this critical infrastructure (for example, by constructing higher bridges and wider drainage systems to deal with changing water levels and precipitation patterns, respectively) and introducing new infrastructure (such as sea walls to deal with sea-level rise and storm surges) would be important for protecting early investments and managing climate risks longer term. Yet it can be challenging to apply this climate lens when designing and constructing infrastructure in a post-conflict setting. These projects are typically framed as urgent and "quick wins," which do not lend themselves to additional climate analysis, and the capacity needed to undertake such an analysis is often limited. Climate risk management and adaptation benefits are more likely to be additional (often unintended) consequences of more efficient and environmentally friendly infrastructure design. An example of this is in Sierra Leone, where efficient water infrastructure has been introduced on a small scale.

With respect to health care, it may be tremendously valuable to determine whether climate change is causing shifts in disease patterns (e.g., the expansion of malaria and other water- and vector-borne diseases) and to ask what measures can be taken to address this issue. Education can be key to increasing adaptive capacity at all levels of social organization. In particular, training in disaster risk reduction and climate risk management can be incorporated into the curricula at all educational levels.

Finally, it may be very important to think carefully about changes to supply chains that may result from climate change and to avoid encouraging investment in climate-vulnerable sectors, unless adequate insurance is part of the investment package. Thus, during the peacebuilding phase, it may be desirable for donors to climate screen their own investments (that is, to make model investments), especially since one of the typical goals of donor investment is to identify and create conditions that will be attractive to external investors beyond the donor community. In the case of Sierra Leone, for example, foreign investment in mining operations and in plantation agriculture for biofuels has proceeded without any attention to possible climate effects, an oversight that may one day prove costly.

In general, the authors believe that the integration of climate change adaptation into peacebuilding is highly desirable, and that some of the problems being experienced by places like Rwanda could have been mitigated, had climate change adaptation been integrated into peacebuilding in the past. Specifically, resettlement patterns immediately after the genocide led to a dramatic reduction in forest cover, an increase in the cultivation of very steep hillsides, and settlement in swamps, all of which intensified vulnerability to the heavy rains and intense droughts predicted by climate change science.

There are many grounds for being encouraged about the viability of integrating considerations of climate change adaptation into peacebuilding because the two processes are similar in important ways: both focus on building capacity and resilience, and both promote the adoption of a longer-term perspective, while requiring enough flexibility to react to changing circumstances. Moreover, because both processes are context dependent, interventions need to be informed by context-specific conflict analysis, capacity assessments, vulnerability assessments, and scenario planning. The stakes are high in both cases, as failure or ineffectiveness can translate into heightened vulnerability, loss of lives, and development setbacks. Finally, the development aspects of peacebuilding are often valuable to supporting the wider recognition of underdevelopment as a root cause of conflict. The development community has not always found the right balance between short-term, externally driven results and the less glamorous medium- to long-term capacity building. Peacebuilding provides an opportunity to rethink development, and integrating adaptation into peacebuilding can make both more sustainable.

On the other hand, there are important differences between the two processes. In particular, what is good for peacebuilding may not always be good for climate change adaptation, and vice versa. For example, settling people in and around Virunga National Park was critical to jump-starting livelihoods and stabilizing communities in the Democratic Republic of the Congo, as it permitted access to forest resources for construction, fuel, food, and medicinal needs (Crawford and Bernstein 2008). The resulting degradation of ecosystem services, however, may have undermined the longer-term adaptive capacity of the system. Similarly, putting money into climate forecasting may seem extravagant when people are struggling to meet daily needs. In sum, climate change adaptation (like development in general) involves trade-offs, some of which may directly conflict with peacebuilding initiatives. Further complicating matters, even if one wished to integrate climate change adaptation into peacebuilding, assessments of climate risk may be difficult or impossible to obtain in the time frame available, and it is always hard to plan and act under conditions of great uncertainty.

CONCLUSION

Smith and Vivekananda contend that "the double-headed problem of climate change and violent conflict thus has a unified solution—peacebuilding and adaptation

are effectively the same kind of activity" (Smith and Vivekananda 2007, 4). At a high level of abstraction, these authors may be correct in arguing that "peacebuilding and adaptation are effectively the same kind of activity, involving the same kinds of methods of dialogue and social engagement, requiring from governments the same values of inclusivity and transparency" (Smith and Vivekananda 2007, 4). The authors of this chapter agree that the integration of climate change adaptation into peacebuilding is attractive in many ways and might even be critical to helping build the needed capacity to transform post-conflict environments into settings of enduring peace and sustainable development. In their own work in the Democratic Republic of the Congo, Rwanda, and Sierra Leone, the authors observed many examples demonstrating that the failure to introduce climate change adaptation into peacebuilding meant that decisions with long-term consequences were not considered from a climate perspective; as a result, these countries are now ill equipped to manage climate risk.

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