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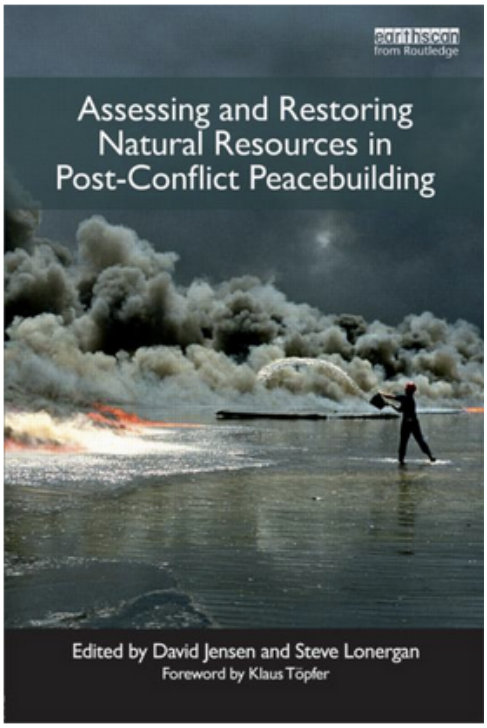

Environment and peacebuilding in war-torn societies: Lessons from the UN Environment Programme's experience with post-conflict assessment

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Environment and peacebuilding in war-torn societies: Lessons from the UN Environment Programme's experience with post-conflict assessment

Ken Conca and Jennifer Wallace

The environment is not usually viewed as the most important problem in war-torn societies.[1] Humanitarian relief, security, economic reconstruction, and political reconciliation all command attention as urgent priorities. Yet violent conflict does extraordinary damage to the environment on which people depend for their health and livelihoods; human insecurities in such settings have a strong, immediate ecological component as people struggle for clean water, sanitation, food, and fuel in a context of conflict-ravaged infrastructure, lost livelihoods, and disrupted institutions. Over time, more diffuse but equally important environmental challenges emerge: establishing systems of environmental governance, managing pressures on the resource base, creating administrative capacity, dealing with environmental effects of recovery, and finding sustainable trajectories for reconstruction.

The scholarly debate over whether environmental degradation causes violent conflict is ongoing. But as the chapter shows, a growing body of scholarly literature and case documentation indicates that the failure to respond to environmental needs of war-torn societies may greatly complicate the difficult tasks of peacebuilding. At worst, tensions triggered by environmental problems or contested access to natural resources may lead to renewed violent conflict; more generally, failure to meet basic environmental needs undercuts reconciliation, political institutionalization, and economic reconstruction. In the short run, failure to respond to environmental challenges can deepen human suffering and increase vulnerability to natural disasters. In the long run, it may threaten the effective

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[1] The chapter uses the term *war-torn* instead of the more common *post-conflict*, which suggests a neat dichotomy between war and peace that rarely exists in the wake of civil conflict. See de Zeeuw (2001).

functioning of the governmental, economic, and societal institutions necessary for sustained peace.

Along with challenges may come opportunities. An emergent strand of scholarship argues that shared environmental challenges may create peacebuilding opportunities: providing an agenda of shared interests, promoting confidence building, deepening intergroup ties, and fostering the complex task of (re)constructing shared identities. Peace in this context can be thought of as a continuum ranging from the absence of violent conflict to, in its most robust form, the unimagineability of violent conflict (Conca 2002). Peacebuilding, in turn, involves creating the conditions for positive and sustained movement along this continuum.[2] The UN Secretary-General's 2006 progress report on preventing armed conflict stressed both preventive and peacebuilding environmental initiatives. Environmental degradation is flagged as a "risk factor" for violent conflict; environmental protection is identified as a peacebuilding tool "by promoting dialogue around shared resources and enabling opposing groups to focus on common problems" (UNGA 2006, 10). Indeed in the 2010 *Progress Report of the Secretary-General on Peacebuilding in the Immediate Aftermath of Conflict*, Secretary-General Ban Ki-moon calls upon member states and the United Nations system "to make questions of natural resource allocation, ownership and access an integral part of peacebuilding strategies" (UNSG 2010, 12).

Recognizing these connections, the international community's interest in the environmental dimensions of conflict prevention and post-conflict reconstruction has grown. The United Nations Peacebuilding Commission lists building the foundation for sustainable development in its mandate. The need to address the management of natural resources is included within the European Commission's Stability Instrument for conflict-affected countries and fragile states. The United Nations Environment Programme (UNEP) has created a Post-Conflict and Disaster Management Branch (PCDMB), which has conducted assessments in eighteen war-torn countries and regions at the time of this writing.[3] Addressing the environmental dimensions of conflicts and disasters is also one of UNEP's six priorities over the period 2010–2013. Nongovernmental organizations (NGOs) have also engaged the issue; a November 2005 meeting hosted by World Wildlife Fund-U.S. included roughly twenty human rights, conservation, development, and conflict-resolution NGOs (Pendzich 2005).

Yet little is known about the potential role of environmental initiatives in peacebuilding. This chapter seeks to narrow the gap in understanding by drawing lessons from the experiences of UNEP. Through 2010, beginning with Kosovo in 1999, UNEP has conducted assessments in Afghanistan, Albania, Bosnia and Herzegovina, Central African Republic, the Democratic Republic of the Congo, Haiti, Iraq, Georgia, Lebanon, Liberia, the former Yugoslav Republic of Macedonia,

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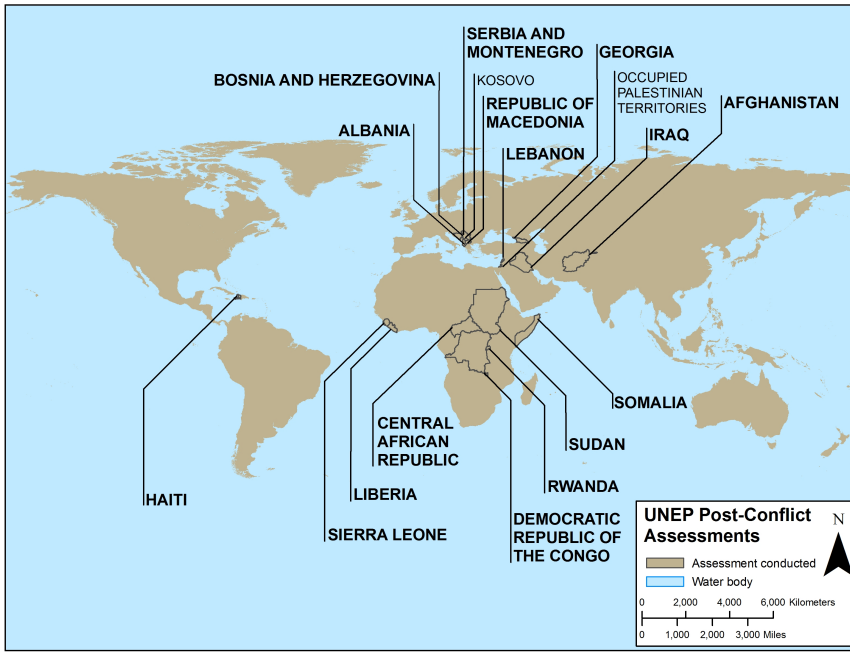
[2] On different conceptualizations of peacebuilding, see Haugerudbraaten (1998).

[3] As of May 2012, UNEP has completed a total of twenty assessments.



Notes:
1. Post-conflict operations in UN member states are set in bold.
2. At the time of UNEP's respective assessments, Kosovo was part of the Federal Republic of Yugoslavia (FRY); the Palestinian territories were known as the occupied Palestinian territories; Serbia (also formerly part of FRY) was known as the country of Serbia and Montenegro; and South Sudan was not yet an independent country.

Rwanda, Serbia and Montenegro, Sierra Leone, Somalia, Sudan, and the occupied Palestinian territories (see table 1).[4]

UNEP's assessments have been of three main types: rapid appraisals of environmental conditions following conflict, detailed evaluations that approach a national state-of-the-environment report, and issue-specific interventions on targeted questions such as toxic waste, oil spills, human displacement, or depleted uranium weaponry.[5] Although the assessments vary considerably in depth and focus, UNEP's experience offers a unique look at environmental conditions in societies emerging from periods of violent conflict. The goal of the chapter is to use the experience to identify conflict-induced environmental challenges and entry points for environmental initiatives in peacebuilding. In doing so, the chapter

[4] UNEP's assessment in Kosovo was undertaken as a joint initiative with the United Nations Centre for Human Settlements (UNCHS). UNCHS was the predecessor of the United Nations Human Settlements Programme, commonly known as UN-HABITAT.

[5] For another perspective on UNEP's post-conflict assessments, see David Jensen, "Evaluating the Impact of UNEP's Post-Conflict Environmental Assessments," in this book.

Table 1. Activities of UNEP's Post-Conflict and Disaster Management Branch, 1999–2010

Country/territory	*Principal issues identified*
Afghanistan	• Land degradation; water availability; illegal forest harvesting and grazing; urban waste, wastewater and sanitation.
Albania	• Industrial hot spots, environmental impacts of refugees, institutional capacities for environmental management.
Bosnia and Herzegovina	• Depleted uranium weaponry.
Central African Republic	• Role of natural resources in conflict and peacebuilding, land conflicts, illegal mining and deforestation, institutional capacities for environmental management.
Democratic Republic of the Congo	• Mineral concessions, hazardous wastes, deforestation, water availability, sanitation, biodiversity, land degradation, environmental impacts of displaced persons, land tenure, institutional capacity for environmental management.
Former Yugoslav Republic of Macedonia	• Industrial hot spots, environmental impacts of refugees, institutional capacities for environmental management.
Haiti	• Extreme deforestation and disaster vulnerability, waste management, institutional capacities for environmental management.
Georgia	• Industrial hot spots and forest fires from bombing.
Iraq	• Water resources, waste management, oil industry, ecosystem degradation, biodiversity, institutional capacity, depleted uranium weaponry, military ordnance.
Lebanon	• Industrial hot spots, solid and hazardous waste, water resources, coastal and marine environment, military ordnance.
Liberia	• Refugee impacts, energy supplies, water and sanitation, agriculture and food, deforestation, waste management.
Occupied Palestinian territories	• Freshwater, wastewater, hazardous waste, solid waste, conservation and biodiversity.
Rwanda	• Environmental impacts of displaced persons, water availability, biodiversity, land degradation, soil erosion, energy supplies, institutional capacity for environmental management.
Federal Republic of Yugoslavia/Kosovo	• Industrial hot spots, Danube River, protected areas, human settlements, depleted uranium weaponry.
Sierra Leone	• Natural resources and conflict, mineral concessions, land tenure, water management, and waste management.
Somalia	• Resource exploitation (deforestation, land degradation, fisheries depletion), hazardous wastes, human settlements, water and sanitation.
Sudan	• Water resources, refugees and human settlements, industrial and agricultural impacts, deforestation, wildlife and marine resources, resource competition and conflict-related resource exploitation, institutional capacities for environmental management.

Source: Compiled by the authors.
Note: Table excludes assessments focused exclusively on responding to disasters.

notes with caution Roland Paris's observation that peacebuilding "developed into something of a growth industry in the 1990s" (Paris 2004, 3), creating the danger of generically viewing a highly diverse set of conflicts. Clearly, even if war-torn countries had broadly similar ecosystems and natural resource–use patterns (they do not), the heterogeneity of conflicts would make it difficult to develop general formulae about environment-conflict-peace linkages. Much depends on local context.

The chapter draws upon the assessment reports, other documentation, interviews with UNEP's PCDMB staff, and the wider scholarly literature on environment, conflict, and peace.[6] The discussion is organized around four themes: the multiple, often indirect links between violence and environmental degradation; the political dimensions of environmental assessment as a confidence-building tool; resource and environmental linkages among the formal, informal, illegal, and aid-based economies of war-torn societies; and the environmental dimensions of reconstituting the state, regulation, and rule of law. But, first, the chapter provides an overview of the state of knowledge about environmental and natural resource linkages to peace and conflict.

ENVIRONMENTAL CHANGE, NATURAL RESOURCES, VIOLENCE, AND PEACEBUILDING

Early research on environmental change and violent conflict focused on scarcity.[7] The premise was that reduced availability of renewable resources such as forests, soils, croplands, freshwater, and fisheries, or in associated ecosystem services, could trigger intergroup conflict—particularly along preexisting fault lines such as ethnicity, region, or class.

Although many case studies documented links between environmental degradation and violence, skeptics raised important points.[8] First, the many intervening variables—economic factors, state institutions, property rights systems—make it difficult to identify a direct causal link between environmental change and violence. Second, research on civil conflict has found deprivation and grievance, by themselves, to be poor predictors of violent conflict. Third, much of the eco-conflict literature invoked scarcity without paying attention to how social relations create the conditions for resource capture or other forms of social scarcity. Statistical

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[6] At the time of writing, UNEP's environmental assessments for the Democratic Republic of the Congo (DRC) and Rwanda were still underway. For information pertaining to DRC's assessment, see UNEP's synthesis report, *The Democratic Republic of the Congo: Post-Conflict Environmental Assessment*, available at http://postconflict.unep.ch/publications/UNEP_DRC_PCEA_EN.pdf. For Rwanda's UNEP assessment, *Rwanda: From Post-Conflict to Environmentally Sustainable Development*, see http://postconflict.unep.ch/publications/UNEP_Rwanda.pdf.

[7] See, for example, Homer-Dixon (1994) and Bächler and Spillmann (1996).

[8] For a range of critiques, see Levy (1995); Gleditsch (2001); Peluso and Watts (2001).

tests of association between environmental scarcity and conflict provide some qualified support but remain limited by poor and improperly scaled data.[9]

A separate body of research has asked whether natural resource abundance, rather than environmental scarcity, drives violence, noting the sharp increase in civil conflict in petroleum- and diamond-rich states in particular (Ross 2006). But the precise mechanisms by which resource wealth may induce or sustain violence remain disputed. As Michael L. Ross points out, resource wealth may provide financial sustenance for rebellion, weaken the development of state institutions, increase the likelihood and effects of trade shocks, make capturing the state more attractive, or increase the perceived benefits of separatism (Ross 2006). Again statistical tests have shed some light but not settled the matter, in part due to data limitations and difficulty in using statistical means at a subnational scale.

One important limitation of environment-conflict research has been its failure to examine how social interactions around natural resources and the environment may also create opportunities for cooperation. As Adrian Martin suggests, "environmental scarcity and resource use competition are part of the everyday politics of life. . . . The most usual outcomes are peaceful ones, where broadly accepted rules lead to cooperative outcomes of one kind or another. Thus, theoretically at least, resource use conflict can form part of a virtuous circle, in which cooperative responses contribute to social capital, thus encouraging robust institutions and future cooperation" (Martin 2005, 330). In this view, the key is not abundance or scarcity but whether inherent conflicts are channeled into productive forms of resolution as opposed to violence.

Some scholars have argued that social relations around the environment may create peacebuilding opportunities. Ken Conca and Geoffrey D. Dabelko theorize two pathways for "environmental peacemaking": one emphasizing use of environmental opportunities to improve the "contractual environment" for cooperation among political and economic elites, and another in which environmental interdependencies might strengthen cross-boundary societal linkages (Conca and Dabelko 2002). Richard Matthew and colleagues documented several cases in which "conservation practices may provide a basis for bringing parties who have been or are engaged in conflict together to begin the process of peace building around common environmental concerns" (Matthew, Halle, and Switzer 2002, 5). Although empirical research is in the early stages, there is a growing body of case studies.[10] The picture that emerges is that natural resource management and environmental governance can be a high-stakes point of social interaction and that the characteristics of how resources are governed can be a critical determinant in whether social relations follow a peaceful or violent path. This is particularly true in low-income, resource-dependent economies, under conditions

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[9] See, for example, Hauge and Ellingsen (1998). For a critique of statistical analysis of environmentally induced conflict, see O'Lear (2006).

[10] See, for example, Martin (2005); Evans (2004); Sundberg (2003); Rogers (1999).

of political instability, or in the context of weak governance institutions—central features of most war-torn societies.

LESSONS FROM UNEP ASSESSMENTS

Four sets of lessons have emerged from the assessments conducted by UNEP: environmental effects resulting from conflict have multiple pathways; militarized environments provide opportunities for confidence building; linkages between the environment and the economy are found in war-torn societies; and environmental governance is dependent upon how state capacity is built and the rule of law is shaped in war-torn societies.

The environmental burden of conflict: Multiple pathways

Many studies have documented conflict's directly harmful ecological effects.[11] Martijn Bijlsma points to the "grave environmental effects of civil conflict" as one reason to incorporate environmental considerations into peacebuilding initiatives, stressing collateral damage, antipersonnel mines, and targeting of the environment as part of military strategy (Bijlsma 2005, 166). The Biodiversity Support Program, a consortium of conservation NGOs funded by the U.S. Agency for International Development, documented extensive effects of armed conflict on biodiversity in sub-Saharan Africa (Shambaugh, Oglethorpe, and Ham 2001).

As table 1 indicates, the principal impacts vary from case to case. In some instances, quick assessments with limited foci—human displacement in Albania and the former Yugoslav Republic of Macedonia, depleted uranium weaponry in Bosnia and Herzegovina and Kosovo—found minimal effects (with the caveat that limitations of time, access, and data left considerable uncertainty). In other instances, protracted conflict has clearly taken a heavy toll, as in Iraq, Afghanistan, and the occupied Palestinian territories. Environmental damage that appears across several of the cases includes the following:

Impacts of human displacement. Difficult human-settlements problems accompany large-scale, rapid displacement of people from their communities due to conflict. UNEP findings are similar to the environmental guidelines of the Office of the United Nations High Commissioner for Refugees, which identify six primary environmental impacts of refugees: natural resource depletion; irreversible impacts on natural resources; social impacts on local populations; and effects on health, social conditions, and the economy (UNHCR 2005). In Darfur, many residents of camps for displaced people make a living by brick making, with the resulting use of fuelwood causing severe localized deforestation (UNEP 2007c). In Sierra Leone, the UNEP assessment found that many unsustainable practices,

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[11] See, for example, Matthew, Halle, and Switzer (2002).

undertaken out of necessity as survival mechanisms by displaced people, have become institutionalized in the years following the conflict (UNEP 2010).

Toxic hazards from bombardment, oil fires, and conflict in industrial areas. During the 2006 Israeli incursion into Lebanon, the bombing of the Jiyeh power station created a substantial Mediterranean oil spill (UNEP 2007b). North Atlantic Treaty Organization (NATO) air strikes in the Kosovo conflict created localized contamination at a number of industrial facilities (UNEP and UNCHS 1999).

The conflict-deforestation link. This may include any or all of the following: illegal logging, use of timber as a conflict-sustaining financial resource, a legal and administrative vacuum that undercuts sustainable forest management, and pressures on forests from the short-term time horizon of insecure communities. Forests have also been targeted during conflict: in Sudan, evidence was found that trees were felled maliciously, most likely to sever community ties to the land and reduce opportunities for resettlement (UNEP 2007c).

Landmines, unexploded ordnance, and depleted uranium weaponry. Israel's incursion into Lebanon left as many as a million unexploded cluster bombs.[12] In addition to the devastating human toll, landmines and unexploded ordnance can liberate and disseminate toxic materials, displace people onto marginal lands and fragile ecosystems, and disrupt resource management and tourism.[13] UNEP has also weighed in on the ongoing controversy over health effects of depleted uranium weaponry, conducting field tests in Bosnia and Herzegovina, Kosovo, Serbia and Montenegro, and Lebanon.

Water supplies, sanitation, waste disposal, and public health. The challenges of maintaining water and sanitation services and controlling associated problems can be severe. In the conflicts in Lebanon (in 2006) and Gaza (in 2009), solid waste disposal sites became overloaded, contaminating water supplies. In Lebanon, greatly increased streams of hazardous health-care waste were reportedly entering municipal waste sites, promoting disease vectors (UNEP 2007b, 2009a).

These effects may persist long after cessation of violence; in its Sierra Leone assessment, UNEP found that the effects of conflict on water and agriculture infrastructure in rural areas were still observable nearly a decade later (UNEP 2010).

A more important contribution of the UNEP cases is identifying *indirect* pathways by which conflict affects environmental quality, beyond damage from the fighting itself. Among these indirect linkages, three stand out. First, violent conflict imposes an environmental burden on ecosystems that, in nearly all cases, were already straining under severe challenges of pollution, resource degradation, and poor environmental management. Second, violent conflict disrupts state institutions, initiatives, and policy coordination mechanisms. In virtually all cases, conflict yielded poor management, abundant space for illegality, and the collapse

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[12] See "Report of the Mine Action Coordination Centre, South Lebanon, for the Month of October 2006," cited in UNEP (2007b).

[13] See Torres Nachón (2004).

of positive practices. Third, in the face of violent conflict, desperate people are often forced into choices with unsustainable consequences. Illegality and regulatory lapses cause overharvesting, accelerated extraction, and resource degradation—but so do the pressures of conflict on livelihoods and the resultant changes in people's survival strategies. Each of these indirect linkages deserves a brief elaboration.

First, the direct effects of conflict are compounded by the poor state of the pre-conflict environment, a striking theme in every case. As Pekka Haavisto characterized the occupied Palestinian territories, "There have been direct impacts, caused by military activities; indirect impacts caused by the war-like situation; and an overall environmental degradation due to the lack of administrative management and public awareness" (Haavisto 2003, 2). In Liberia, agriculture, logging, mining, road building, and fuel production had already taken a large toll on forests prior to conflict (UNEP 2004a). In the former Yugoslav Republic of Macedonia, the assessment revealed severe waste management problems: proliferation of illegal dumps, uncontrolled burning, and little or no effective regulation of hazardous wastes (UNEP 2001). Similar problems in Sudan are "directly reflected in the elevated incidence of waterborne diseases, which make up 80 percent of reported diseases in the country" (UNEP 2007c, 13). In Iraq, a combination of poor governance, international sanctions, and minimal regional cooperation created "critical long-term environmental vulnerabilities and risks" related to water quality, ecosystem degradation, waste management, and the oil industry (UNEP 2003d, 28).

A second indirect linkage is the impact of conflict on environmental institutions and governance, which is striking in nearly every case. In Liberia, conflict undercut budgets, staffing, and access for the Forestry Development Authority, leading to failure on several levels: inability to control the explosive growth of logging roads into the forest during the conflict, siphoning of management and reforestation funds accumulated from logging fees, little or no support for community participation, and inability to enforce community rights in forest-concession agreements (UNEP 2004a). In Somalia, the conflict allegedly has enabled some industrialized countries to dump hazardous wastes there, due to political instability, the availability of dumping sites, and low public awareness (UNSC 2011). For the Palestinian Authority, the conflict has imposed a severe burden on waste-processing systems. Some of this is direct, in that facilities have either been targeted or suffered collateral damage, at a time when the general destruction of buildings and infrastructure has greatly increased the waste stream. But there are also second-order effects: It has been difficult to obtain spare parts, and curfews and checkpoint closures disrupt waste collection and transport. Israeli environmental authorities have also been disrupted by violence and are said to have only limited control over the activities of Israeli settlements in the occupied territories (UNEP 2003c). There have been repeated Palestinian allegations that settlements have exploited lax enforcement to attract hazardous industries from Israel (charges denied by Israeli officials) (UNEP 2003c).

Another example of the institutional effects of conflict is Afghanistan, where conflict has disrupted any capacity for effective water management. Deep wells are drilled in uncoordinated fashion; timed releases from storage ponds for drought control or irrigation are done poorly, if at all; and community decision-making structures governing longstanding water systems have largely collapsed (UNEP 2003a). More generally, "local community decision-making structures became unable to deal with the magnitude of the demands being made on the environment, as well as the resulting environmental degradation" (UNEP 2003a, 95).

Third, there are telling anecdotes in the cases about the effects of conflict forcing people to make choices that have unsustainable consequences. In Lebanon, farmers have set bushes ablaze, hoping to set off the unexploded cluster bombs blocking access to farmlands, although this practice can trigger a new round of impoverishment and environmental degradation by worsening soil erosion (UNEP 2007b). Other examples include mangrove-forest harvesting for fuel and charcoal in Liberia; the felling of pistachio woodlands in Afghanistan, due in part to doubts about future access to the resource; and the preemptive release of industrial chemicals in Serbia and Montenegro in anticipation of air strikes (UNEP 2004a, 2003a; UNEP and UNCHS 1999). Positive practices also suffer: UNEP assessments via satellite imagery suggest that the toll of the Israeli incursion into Gaza in 2008–2009 included destruction of or severe damage to an estimated 180 greenhouses (UNEP 2009a).

Confidence-building potential in militarized environments

A second set of lessons relates to environmental confidence building. The emerging literature on environment and peacebuilding posits that creating shared environmental knowledge through cooperative means may be a useful confidence-building tool, particularly when it engages actors beyond the state (Conca 2002; Carius 2006). This raises several questions to which UNEP's experience can speak directly. What are the challenges to environmental monitoring in war-torn societies? Are cooperative-knowledge initiatives even possible in such settings? Which actors have relevant knowledge resources? When uncertainty is extensive, does engagement on environmental issues enhance trust or merely deepen suspicion?

A recurring theme in the cases is that environmental monitoring, data collection, and information sharing are casualties of conflict. Typically, historical data are lacking, monitoring is sporadic, and interagency coordination (when agencies exist and function) is poor to nonexistent. In Afghanistan, "while some ministries reportedly undertake a limited amount of *ad hoc* data collection, it is not consistently collected or routinely shared. The lack of communications between the provinces and central government also hampers data exchange. None of the ministries currently have adequate staff resources to collect environmental information, and in many cases monitoring facilities and equipment have been destroyed during the years of war" (UNEP 2003a, 98).

The cases also underscore the challenging nature of collecting basic environmental information in war-torn societies. In post-conflict Afghanistan and Iraq, ongoing fighting hampered data collection by rendering areas inaccessible to UNEP teams. In Lebanon, unexploded ordnance prohibited access to some sites of interest (UNEP 2007b). The observations reinforce a common theme in peacebuilding literature—that a certain level of public order and security is a prerequisite for sustained peacebuilding activities.[14]

A more hopeful aspect of the cases is the presence of local civil society as a source of grounded knowledge. Although such groups have their own agendas, they can help draw a more comprehensive picture and offer diverse perspectives. UNEP encountered a wide array of environmental and conservation-oriented groups in Liberia, "many of which have played an important role in contributing information and experience to the preparation and review of laws" (UNEP 2004a, 76). Several NGOs supported the UNEP assessment team in Afghanistan, and a few contributed personnel (UNEP 2003a). When ongoing conflict precluded access by the assessment team, a local NGO, Save the Environment Afghanistan, provided data on protected areas in the Ajar Valley (UNEP 2003a). The Environmental Foundation for Africa also played a similar supporting role during UNEP's assessment in Sierra Leone. In Bosnia and Herzegovina, local communities were an important source of information in identifying suspected contamination points from depleted uranium weapons (UNEP 2003b). Exceptions were the Central African Republic, Albania, and Serbia and Montenegro, where the assessments found a weakly articulated civil society and NGOs struggling with membership declines and financial difficulties.[15] In several cases, international NGOs, particularly conservation and forestry organizations, were able to maintain a presence, and in some instances figured prominently as sources of data and expertise.

Even where monitoring capacity exists, cooperative initiatives such as post-conflict cleanup or environmental health projects will depend on access to information, data exchange, and institutional transparency—in settings often dominated by suspicion and exclusion. An example of the barriers to drawing a factual picture came when NATO forces resisted releasing information about their use of depleted uranium weaponry in the Balkans. Several cases also revealed problems of public access to information. In the Palestinian case, UNEP flagged the need for better NGO access to information, including "full transparency on donor-funded environmental projects" (UNEP 2003c, 130). In Afghanistan, the assessment found a lack of transparency, no "clear mechanisms" for public participation, a weak media role, and substantial barriers to women (UNEP 2003a, 103). In Albania, the assessment concluded, "information is often treated as a market good, to be bought and sold for institutional gain, rather than to be shared freely for national benefit" (UNEP 2001, 18).

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[14] On security governance issues and peacebuilding, see Bryden and Hänggi (2007).

[15] Only ten of forty identified NGOs in Albania were deemed currently active (UNEP 2000).

There are also episodes in which knowledge controversies seem to reproduce and harden mistrust rather than soften it. For example, Palestinian sources repeatedly charged Israel with environmental abuses, including discharge of untreated wastewater, relocation of unregulated hazardous industries from Israeli to Palestinian lands, and excessive use of water in violation of the Oslo II agreements. UNEP was unable to help resolve these controversies, which reflect and deepen mistrust rather than mitigate it. As Pekka Haavisto—the then-chairman of UNEP's Post-Conflict Assessment Unit—put it, "even in the context of a scientific environmental report, some expressions are interpreted in a political rather than a technical way" (UNEP 2003c, 9).[16] A similar dynamic can be seen in the controversies around depleted uranium weaponry.

Given the combination of difficulty gathering information, fragmented and dispersed knowledge resources, and the potential for uncertainty to harden mistrust, a strategic approach is required if generating cooperative environmental knowledge is to serve as a trust-enhancing mechanism. In particular, UNEP's approach has been to trade on its reputation for technical expertise, assume a depoliticized position, and serve as an honest knowledge broker. Klaus Töpfer, UNEP's executive director at the time of the organization's first post-conflict assessment, said on Kosovo, "I am convinced that such a neutral, objective and scientific assessment of the real situation on the ground in a post-conflict situation is essential. This approach provides a much-needed and reliable source of information to the peoples affected" (UNEP and UNCHS 1999, 5).

For an intergovernmental organization, there may be little alternative to this depoliticized approach if UNEP is to work effectively with governments of war-torn societies. Staff consistently named UNEP's reputation for technical expertise and neutrality as its most important resources in dealing with governments; one stressed that how to maintain that position of neutrality while engaging in consultation with governments had been an important part of organizational learning.[17] Some report findings have been controversial, such as those concerning the Jiyeh oil spill in Lebanon, the links between water and conflict in Sudan, toxics issues in the Israeli-occupied Palestinian territories, and depleted uranium weaponry. Staff stressed that although there was a round of consultation with the relevant government when the draft report was ready, the facts of the case would not be changed unless supported by new scientific data.

There are also limits to a depoliticized, predominantly technical approach to environmental knowledge. PCDMB staff described their work as a "bridge-building tool," in which the assessment report served as a starting point, and

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[16] The Post-Conflict Assessment Unit was the predecessor of Post-Conflict and Disaster Management Branch.

[17] The authors interviewed UNEP PCDMB staff members in September 2007, in Geneva, Switzerland.

stressed the importance of local actors having a sense of ownership. In divided societies ravaged by violent conflict, actors will bring to the table many different ways of knowing and historical reference points; the technical-rational discourse of modern science will be inaccessible to a wide swath of the population; and "facts" will be widely understood to be political things. Under these circumstances, efforts to depoliticize knowledge entail a clear trade-off: they make it more feasible to work under very difficult circumstances but at the risk of reducing the scope of potential ownership in the results. As UNEP embarks on new models of post-conflict environmental assessment—involving a more complex set of partnerships with actors other than simply an environmental ministry—these trade-offs will likely come to the foreground of efforts to cooperate around shared environmental knowledge. For environmental assessments to be not just resource-management guides but also confidence-building tools, the task of widening the audience becomes central.

Reconstruction and economic development: Environment-economy linkages in war-torn societies

Economic development is critical to conflict transformation strategies. As Oliver Richmond suggests, "fieldwork in several different post-conflict environments—from the Democratic Republic of Congo to East Timor and the Balkans—suggests that development is often the major gap in the peace process, despite much effort being redirected toward social justice, economic stabilization, and free market reform" (Richmond 2005, 437). Paris has argued that aggressive structural adjustment and neoliberal reforms, pushed by international actors, have exacerbated tensions or set back progress by undermining the reconstitution of the political system and state capacity (Paris 2004). These reforms, and aid initiatives in general, often target war-torn societies' natural resource sectors, with intensified extraction viewed as a quickly tapped revenue source.

The concept of sustainability provides a link between economic redevelopment and environmental quality.[18] Toward that end, one critical component of peacebuilding is to enhance the security of people's livelihoods while promoting sustainable resource use and better environmental governance.[19] Although not their central focus, several of the UNEP cases identify opportunities to link environmental management and economic development. For example, the Afghanistan assessment proposes a civilian conservation corps to plant trees and promote sustainable forestry, while identifying benefits of a revitalized protected-areas network for tourism (UNEP 2003a). In Liberia, the assessment identifies

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[18] *Sustainable development* is defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (UNGA 1987, 1).

[19] On the economics of peacebuilding, see Paris (2004); Forman and Patrick (2000).

potential for debt-for-conservation swaps, given the country's heavy indebtedness to multilateral lending agencies (UNEP 2004a).

The UNEP cases also flag many unsustainable practices developed under periods of weak governance, often tied to the pull of export revenues. In Somalia, under weak forest regulation, there has been rampant harvesting of trees for charcoal. Beyond the environmental damage, the practice has led to open conflict between clans, including shoot-outs and laying mines. The same is true of largely unregulated coastal fishing, including overharvesting and destruction of foreign fishing boats by local fishers (UNEP 2005).

Examples of unsustainability include many episodes of inadequate environmental planning in aid and reconstruction. Environmental concerns are often relegated to a secondary level in humanitarian aid, and poorly conceived aid responses can render critical environmental problems worse. The Afghanistan assessment found that international efforts to increase water supplies had in some cases led to digging drinking wells next to septic tanks (UNEP 2003a). In Afghanistan, the UNEP assessment team found "no consistent application of [environmental impact assessment] guidelines used by donors and international organizations" (UNEP 2003a, 97).

The aid economy can also depress the prices of local goods, affecting sectors necessary for sustainable livelihoods. In Somalia, large-scale and sometimes poorly timed delivery of food aid contributed to driving farmers out of agriculture and to the decline in per-capita food production (UNEP 2005). Sudan, on the other hand, highlights the complexity of the matter: "if aid were reduced to encourage a return to agriculture, the result in some areas would be food insecurity and an intensification of land degradation, leading to the high likelihood of failure and secondary displacement" (UNEP 2007c, 16).

In identifying sustainable projects and flagging unsustainable ones, it is critical to keep in mind that "conflict economies" consist of several distinct but intertwined segments: the remains of the formal economy, the international aid economy, the informal economy, and the criminal economy (Kamphuis 2005). The danger is that peacebuilding strategies will overemphasize one strand, fail to recognize the others, or implement initiatives that work at cross-purposes in their effects on the different strands. Debt-for-conservation swaps may make sense for Liberia—but must be assessed not only in terms of debt pressure on the formal economy but also in the context of the consistent failure of state institutions to stop illegal timber extraction (criminal economy) or deliver benefits promised to local communities in forest-concession agreements (subsistence/informal economy). Similarly, rebuilding efforts spurred by international aid must be assessed in terms of their impacts on local livelihoods—as when reconstruction drives demand for timber, which in turn impacts local communities in forested areas.

Another complication seen clearly in some UNEP cases is that conflict is not bad for all forms of business. Conflict economies are embedded in transnational commodity chains, populated by actors who may exploit the situation. The problems of "conflict timber" and "conflict diamonds" in Liberia and their

connection to international market demand for the commodities have been well documented.[20] Less well known is the fact that the period 1997–2002 also saw a tripling of Liberian rubber exports, despite declining international prices and escalating violence (UNEP 2004a). UN officials and the new government alleged that unregulated plantations occupied by former combatants and featuring "conditions of slavery" for laborers were able to market their product through transnational buyers, including Firestone (Leighton 2006).

There are some striking examples of production flourishing in conflict zones, including activity that is both illegal and unsustainable. Conflict in Liberia hurt cattle rearing and led to a flourishing illegal trade in bushmeat for local consumption and for export (UNEP 2004a). Some of the principal linkages among the formal, informal, illegal, and aid-based segments of the economy are environmental; effects of activity in one sphere spill over to the others. In particular, actions to rebuild the formal economy via the aid-based economy may spill over in the form of livelihood effects on the informal economy and local communities, and the embeddedness of local economic activities in transnational commodity chains may stimulate unsustainable activities in weakly governed areas.

Reconstituting the state: Environmental governance, state capacity, and the rule of law

A fourth set of lessons involves the reconstitution of environmental governance. How the environment will be managed, and for whom, may be shaped as parties work out political arrangements. Even preliminary peace overtures may have environmental ramifications for human security and social stability, as when lootable resources are used to attract conflicting factions to the peace process. Forest concessions, for example, were used to consolidate power in Cambodia after the 1993 UN-sponsored elections, creating conditions for rampant illegal logging and deepening social conflict (Global Witness 2002).

A common pattern in the UNEP cases is the weakness of administrative systems, regulatory control, and the rule of law for environmental protection and natural resource management. In Afghanistan, environmental management was weak to nonexistent in urban areas, while rural areas suffered from the conflict-induced collapse of traditional community-based systems of resource management. In Iraq, the Environment Protection and Improvement Directorate saw its laboratories looted, critically degrading the country's environmental monitoring capacity (UNEP 2007d). In the Balkans, political and economic turbulence yielded inadequate funding and staffing levels, weak technical capacity, and public skepticism. In all cases, weak implementation, poor interagency coordination, inadequate resources, and gaps in basic information were the norm.

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[20] See, for example, Global Witness (2005).

But the assessments also provide some examples of institutional development during conflict or in its wake. In Liberia, the conflict years were also a period of rapid development of the legal framework for environmental protection (UNEP 2004a). In Afghanistan, the 2002 *loya jirga* (grand assembly) that came in the wake of the U.S. intervention against the Taliban regime produced the Ministry of Irrigation, Water Resources and Environment—the first ministry in Afghanistan's history with an explicit environmental mandate, later transferred to the independent National Environmental Protection Agency (UNEP 2003a). The Sierra Leone Environment Protection Agency followed a similar path. In the occupied Palestinian territories, the Oslo Peace Accords launched a Palestinian agency with environmental responsibilities.

PCDMB staff point to strengthening capacity of environmental ministries as an important effect of their work. Several assessments contain recommendations that imply a strategic progression from assessment to cleanup and monitoring and then to institution building and development of legal and policy frameworks. In Serbia and Montenegro, a rapid assessment of industrial hot spots led to a feasibility study on cleanup projects, which in turn led to a cleanup program linking UNEP and local authorities.[21] Trade-offs encountered in this work included whether to adhere to the national legal framework or follow international best practices and how to incorporate local human resources. UNEP's choices to emphasize national law and build on local capacity slowed implementation but were also felt to have enhanced local acceptance and the capacity to sustain results (UNEP 2004b).

Liberia, Afghanistan, and Sudan provide test cases in which UNEP assessments have led to more sustained engagement in environmental institution building. The Liberian experience revealed several daunting challenges to effectively institutionalizing sustainable environmental governance. In biodiversity protection, for example, identified institutional constraints include poor infrastructure and administration, understaffing, lack of data, weak enforcement, barriers to institutional cooperation, and weak financial support—all either created or exacerbated by the conflict (UNEP 2007a). Earlier progress in legal development has stalled for want of implementing legislation. Efforts to strengthen community-based natural resource management (CBNRM)—extensively disrupted by conflict and further marginalized in some legal reforms—have developed slowly and unevenly (UNEP 2007a). Although a full assessment of UNEP's post-conflict accomplishments in Liberia is beyond the scope of the chapter, the limits are apparent: UNEP has phased out its in-country program, and one staffer reported that the effort had "influenced the UN but not the government."

The picture in Afghanistan is more complex. A strong international aid presence and a more receptive national government created more operational space. The

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[21] For more information on the cleanup program in Serbia, see Muralee Thummarukudy, Oli Brown, and Hannah Moosa, "Remediation of Polluted Sites in the Balkans, Iraq, and Sierra Leone," in this book.

preliminary assessment led to a longer-term partnership for "capacity building and institutional development" along five specific dimensions: government institutions, law and policy, impact assessment, environmental education, and CBNRM (UNEP 2006). Early assessments by UNEP and others revealed several barriers to these goals, including the environmental damage from the conflict, the disruption of traditional resource management systems and institutions, and basic challenges of creating communication systems with adequate staff, office equipment, and the like. A 2005 interim progress report described Afghanistan's environmental situation as "an immense challenge that will take decades to achieve" (UNEP 2006, 19).

Progress in Afghanistan has been uneven, with the strongest advances made in agency building, law, and policy (including a national environmental protection agency, national framework legislation, development of human resources, and engagement with several multilateral environmental agreements). Environmental impact assessment was slower because stakeholders struggled before eventually agreeing on a policy framework. Perhaps the least progress has been made in CBNRM, historically the norm in Afghanistan but severely disrupted by conflict. Also, PCDMB staff acknowledge that social-science expertise, which is central to effective support of CBNRM, has been the least-developed link in their work.

UNEP's work in Sudan represents the most ambitious effort to build on its assessment work. The most comprehensive of the UNEP assessments to date, *Sudan: Post-Conflict Environmental Assessment* can be read as a state-of-the-environment report rather than merely a post-conflict snapshot (UNEP 2007c). In the wake of the 2007 assessment, UNEP opened an office in Khartoum. Initiatives have been launched that are intended to yield several specific outputs over the 2009–2012 time frame. One strand of work seeks to enhance the environmental and resource management capacity of the national and state governments, including capacity-building work with Khartoum in the North and Juba in the South. A second strand seeks to promote awareness and action in South Sudan, where a ministry of environment was created. A third strand focuses on Darfur, addressing its environmental situation (with particular attention to water management and reforestation) and raising the profile of environmental concerns in the peace process. Activities are also underway to promote the mainstreaming of environmental awareness and best practices and to address climate vulnerability. The United Kingdom has provided the bulk of financing for the follow-up work combined with contributions from the governments of Italy and the United States.

ENVIRONMENT AND PEACEBUILDING: SUPPORT, CAVEATS, AND STRATEGIC TRADE-OFFS

There are important reasons to promote effective environmental governance and natural resource management in societies emerging from protracted conflict. To

be sure, trade-offs with other values abound in such settings. But UNEP's decade of experience underscores several points in the emerging literature on environment and peacebuilding. Systematic failure to manage resources sustainably undercuts social welfare and social justice; social relations around the environment in war-torn societies contain potential pathways to both resurgent conflict and enhanced cooperation; and these facts are only amplified in societies where most livelihoods are tied directly and immediately to the resource base. In other words, environmental issues create high-stakes choices in war-torn societies. Handled effectively, they may create a solid foundation for peace and sustainable development; handled poorly, they risk undercutting an already tenuous peace.

But the UNEP cases also suggest caveats and refinements to how the environmental dimensions of peacebuilding are conceived. First, conflict can do tremendous damage to the environment, yet in these cases, some of the most important pathways are seen in how conflict changes institutions, disrupts livelihoods, and alters social practices. Second, as peacebuilding scholarship posits, cooperative environmental initiatives may have substantial potential to enhance trust and build confidence, but such initiatives are complicated by the challenges of engaging a wide array of societal actors and by the fact that environmental controversies can also harden differences and reinforce conflict identities. Third, aid projects and development initiatives play a crucial role in the prospects for sustainable reconstruction, but they will accomplish little if they do not account for how conflict economies are fragmented into formal, informal, aid-based, and illicit components or for how the fragments are embedded in transnational commodity chains that exploit weak governance to accelerate extraction. Fourth, strengthening environmental law, administration, and management can be an important part of rebuilding the state and reestablishing the rule of law, but such initiatives must reach beyond formal state institutions to engage the societal practices where most resource governance actually occurs.

UNEP's experience also suggests the need for a more strategic, adaptive approach. A depoliticized, technical, honest-broker strategy—in which rapid assessment led to monitoring and cleanup activities, which in turn led to bureaucratic strengthening and legal codification—yielded some useful results in some of the cases. There is also clear evidence of adaptation of this approach through organizational learning. The Sudan assessment involved a wider process of stakeholder engagement, identified local partners for follow-up work, and engaged the separate governing entities in the North and South in bridge-building dialogue. The recommendations, each of which included specific cost estimates and implementing agencies, became part of the UN country team's agenda.[22]

But this approach also runs up against clear political limitations. Disasters and conflicts are now one of UNEP's six strategic priorities, which will strengthen

[22] UNEP PCDMB staff, correspondence with author, October 2008.

UNEP's capabilities. But UNEP has neither a conflict-prevention mandate nor the political or logistical resources to conduct extensive on-the-ground operations in war-torn countries. To build on the possibilities, a more strategic, system-wide approach is required: one that coordinates more explicitly with an expanded set of international peacebuilding actors while engaging domestically a wider set of stakeholders.

A key trade-off of the approach is implicit in the first recommendation of UNEP's report on the occupied Palestinian territories: "keep the environment out of the conflict" (UNEP 2003c, 126). UNEP's depoliticized, technically oriented approach is not surprising given the politicization surrounding all aspects of international intervention, no matter how benign and altruistic aid efforts may seem to some in the international community. The position seems to have been vital to achieving the level of cooperation and partnership with host governments seen in several of the cases.

But it is also true that there are inherently political elements to environmental management as a peacebuilding tool. In Liberia, the effects of conflict on traditional dryland agriculture stimulated interest in swamp cultivation to boost critically needed food supplies. Such a shift entails complex environmental and social trade-offs: less pressure on forests but the destruction of mangroves and ill effects of wetlands conversion on biodiversity (UNEP 2004a). Even if this high-stakes choice is made to optimize Liberia's trajectory of sustainable development, it will have the effect of redistributing power, resources, and opportunities among Liberians. War-torn societies and the international community will have made great progress toward peacebuilding when the social conflicts embedded in environmental choices can be managed as well as the technical, legal, and administrative ones.

Finally, UNEP's experience suggests some important steps moving forward. First, as key elements of public health, livelihoods, and recovery, environmental considerations must be present at the earliest stages of the efforts to heal societies and landscapes torn by conflict. Much work lies ahead in mainstreaming effective environmental capacity within the UN's peacebuilding efforts. Second, the role of natural resources in recovery strategies must be fundamentally reevaluated, with an eye toward optimizing an overall trajectory of sustainable development and creating the institutional underpinnings to stay on the trajectory, rather than seeking a quick fix of enhanced commodity exports. Third, perhaps the most important environmental peacebuilding work takes place before conflict even occurs, in the form of proactive, preventive measures. Investment in effective, equitable, and conflict-sensitive strategies for natural resource management may lessen incentives for conflict, reduce the impact on people and the environment when conflict does occur, and enhance the chances for durable peace.[23]

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[23] These recommendations parallel several made by UNEP (2009b).

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