CHAPTER ONE

Analyzing Environment, Conflict, and Cooperation

By Richard A. Matthew, Michael Brklacich, and Bryan McDonald

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Abstract

Richard A. Matthew, Michael Brklacich, and Bryan McDonald identify ten areas that have received insufficient attention from environment, conflict, and cooperation researchers:

- *Situating problems in a broader context;*
- *Engaging the literature on conflict and cooperation;*
- *Conducting fine-grained, micro-level analysis;*
- *Improving analysis of the environmental effects of violent conflict;*
- *Testing the claim that environmental conservation supports cooperation;*
- *Studying the urban dimension;*
- *Clarifying links between demography and environmental security;*
- *Advancing the debate between scarcity and abundance theories;*
- *Developing analytical tools that can integrate knowledge about vulnerability and capacity; and*
- *Expanding methodological tools to include qualitative methods and new visualization technologies.*

The authors recommend five ways that analysis could bolster policymaking:

- *Determine which conservation strategies promote cooperation;*
- *Integrate development and environmental policy;*
- *Incorporate environmental security into urban development and planning;*
- *Deepen understanding of environmental policies in post-conflict situations; and*
- *Rigorously assess the effectiveness and sustainability of policy interventions.*

Introduction

What are the gaps in the analysis of environment, conflict, and cooperation (ECC) linkages, and how can applied research fill them? This chapter identifies ten methodological, analytical, and substantive opportunities for future research, and five areas in which focused analysis could bolster policymaking.[8]

Gaps and Opportunities for Research

The study of the complex and dynamic relationships among environment, conflict, and cooperation originated in antiquity.[9] Yet, concerns about anthropogenic global environmental change are only a few decades old, and have strongly influenced research conducted in the last ten to fifteen years. Although this relatively new body of research has developed rapidly, it is still in a formative stage. We have identified ten areas that have received insufficient attention from ECC researchers and their critics.

1. Situating problems in broader contexts

Political scientists have dominated ECC research, and have mostly focused on national and subnational settings and time frames of less than ten years. Policymakers may find this limited scope more relevant, but ignoring regional dynamics and historical developments may reduce the explanatory power of such research. For example, in Northern Pakistan—beset by weak governance, rapid population growth, and widespread poverty—the forest cover declined significantly, contributing to conflict and vulnerability (Matthew, 2001). Conserving and reforesting the area, clarifying and protecting property rights, and generating sustainable livelihoods could immediately benefit the residents of Northern Pakistan. However, since the forest extends east into Afghanistan and west into India, its fate depends on events in all three countries, as demonstrated by the 1979 Soviet invasion of Afghanistan, which pushed refugees into Pakistan's forests. Also, by focusing on the recent past, ECC research neglects key historical events that can offer valuable insight into current problems. In this case, deforestation is not a new threat: during the colonial period, the British Raj established a forestry service and increased the pace of logging in Northern Pakistan. In short, expanding the spatial and temporal dimensions of this analysis reveals important structural connections that can deepen understanding and, perhaps, improve policy.

Broader analysis can also contextualize conflict and cooperation, thus addressing the common concern that contemporary ECC analysis is too linear. Instead of assuming that conflict always produces negative results, researchers should assess its historical role as an agent of change, and distinguish between gradations of conflict, ranging from passive and constructive to violent and destructive. Conflict can sometimes encourage new thinking and innovative problem solving. Linear analysis cannot capture the feedback loops that define the intertwined relationships between conflict and its context.

In addition, researchers should increase their efforts to integrate perspectives from multiple disciplines; political scientists and economists dominate ECC research, but geographers, sociologists, urban planners, and historians, among others, can offer valuable input. While geographers may not calculate a forest's market value, they could explain how the forest's physical characteristics affect the availability of its resources.

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[8] This chapter was prepared by an interdisciplinary research team from the International Human Dimensions Programme's Global Environmental Change and Human Security Project (GECHS), which is headquartered at Carleton University in Ottawa, Canada, and has research offices at the University of California, Irvine (UCI), and the International Peace Research Institute, Oslo, Norway. The authors would like to acknowledge GECHS and the Center for Unconventional Security Affairs at UCI for supporting this project. The authors would also like to thank the participants in the Woodrow Wilson Center's "Conference on Environment, Conflict, and Cooperation: Scoping Gaps and Opportunities for Research and Policy Agendas," especially this chapter's two discussants—Saleem Ali of the University of Vermont and Eva Ludi of Swisspeace—for their comments and suggestions.

[9] In *The Peloponnesian War*, for example, Thucydides discusses geography's effect on a state's propensity for war, and concludes that sea-based states (e.g., Athens) are more war-prone than land-based states (e.g., Sparta).

2. Systematically engaging literature on conflict and cooperation

ECC researchers have often resisted responding to the extensive literature on conflict that examines the causal roles played by human psychology, group identity, greed, fear, injustice, unchecked military power, misperceptions of power, global inequalities, and the absence of a global authority. Similarly, they have avoided addressing research on cooperation that considers such variables as the quality of available data, the number of participants, the processes used to manage free riders, the role of political entrepreneurs, the importance of iterative behaviors, and the impact of different contractual environments. Many ECC researchers reduce this complex world to a meta-variable (e.g., undifferentiated "social factors") that affects the relationship between the environment and conflict or cooperation. Critics point out that ECC researchers need to unpack this meta-variable. At the same time, most conflict and cooperation research does not seriously examine the role of environmental factors. Both approaches are equally naïve.

ECC researchers should review the literature on conflict and cooperation to identify relevant variables, and invite conflict and cooperation specialists to join ECC research teams. Workshops and conferences could bring the three communities together to discuss how to integrate theories of conflict and cooperation into ECC literature, and how theory and data from the environmental arena might contribute to research on conflict and cooperation.

3. Conducting fine-grained, micro-level (e.g., livelihood) analysis

In March 1999, the Global Environmental Change and Human Security Project (GECHS) at the University of California, Irvine (UCI) and the Woodrow Wilson Center's Environmental Change and Security Project co-sponsored a workshop on the next wave of environment and security research (Matthew & Dabelko, 2000). The workshop's participants emphasized the need for fine-grained, micro-level analysis that would clarify the precise nature of correlations revealed by quantitative analysis, and pinpoint variables and relationships that could be studied productively on a larger scale. Micro-level analysis could also reveal how individuals and groups cope with environmental change through adaptation, mitigation, and exit strategies.

A study currently underway by the International Union for the Conservation of Nature (IUCN), in collaboration with the International Institute for Sustainable Development (IISD), focuses on four communities in Bangladesh, India, Nepal, and Pakistan that are experiencing high levels of conflict. Using micro-level data gathered in the field, the study seeks to uncover the links among natural resources, livelihoods, access to resources, and violent conflict. Observations and interviews with local residents provide relational data to enrich quantitative analysis.

IUCN's activities highlight the value of field research: IUCN collaborated with IISD to produce an analysis of environment, conflict, and cooperation in Pakistan's North-West Frontier Province (Hanson, Matthew, & Aziz, 2000), which was followed by a more extensive project that assembled a research team to prepare a series of ECC case studies (Matthew, Halle, & Switzer, 2002). The sophisticated networks of local ECC researchers contributing to the IUCN projects have extensive on-the-ground knowledge of both environmental and social factors, and are also familiar with the paradigms developed by ECC researchers. With this growing transnational network, IUCN promises to move the field forward constructively, while linking micro needs to macro policy initiatives.

4. Improving analysis of the environmental effects of violent conflict

ECC literature has attempted to assess the extent of environmental damage caused by war and its preparations. For example, Arthur Westing (1972; 1976) has written extensively about the environmental effects of the war in Vietnam. Murray Feshbach (1995) has detailed the ecological disaster in the Soviet Union caused by the Cold War, and numerous scholars and journalists have claimed that the 1991 Gulf

War caused widespread environmental damage (e.g., El-Baz & Makharita, 1994). While such claims may seem intuitive, it is not clear that they are based on satisfactory evidence; researchers should avoid making strong allegations connecting war to environmental damage without providing empirical support. Researchers also need an evaluative framework that will enable comparisons between wars.

Jeff McNeely's work for IUCN suggests that, in some cases, war might be less destructive to the environment than peace (McNeely, 2000). Is it possible that the environmental effects of war are not always as severe as commonly assumed? What does this imply for conservation efforts during times of war, or for conservation's potential as a pacifying force? Researchers should carefully evaluate the environmental effects of past wars and develop the capability to rapidly assess and mitigate the impact of current conflicts. Recently, UNEP took an important step in this direction: UNEP's Post-Conflict Assessment Unit has reported on the environmental degradation related to conflicts in Afghanistan, Bosnia-Herzegovina, Liberia, Iraq, and other countries. These reports assess the impact of conflict on survivors' health and their relationship to their environments (Post-Conflict Assessment Unit, n.d.). UNEP should coordinate these efforts with other organizations to ensure comprehensive results, which could contribute significantly to discussions of war crimes, refugees, long-term health impacts, and post-war liability, rehabilitation, reconstruction, and development.

5. Testing the claim that environmental conservation supports cooperation and stability, and examining its corollary

Recent work published by Ken Conca and Geoffrey Dabelko (2002), and by Richard Matthew, Mark Halle, and Jason Switzer (2002), portrays conservation and environmentally sustainable practices as relatively low-cost peace-building strategies. Conservation programs can provide tangible, diffuse, and immediate benefits; they can build on scientific data and therefore transcend ethnic, social, and political tensions; they can be phased in, keeping investment low while building trust and a sense of shared fate; and they can neutralize a source of conflict by preventing environmental degradation and resource scarcity.

Or can they? While this relationship is conceptually attractive, it has yet to be confirmed through rigorous empirical research. If this approach proves to contribute to peace-building efforts, conservation will be a useful tool in the workshops of the world's peacemakers, and will give people yet another reason to support environmental organizations. To date, however, the results been uneven and preliminary, and it is premature to draw firm conclusions linking conservation and peace. Likewise, the establishment of peace parks has great conceptual appeal. However, researchers should carefully examine case studies to determine if this strategy could be successfully deployed in some of the world's hot spots.[10]

6. Studying the urban dimensions of environment, conflict, and cooperation

Environmental security research has focused primarily on rural areas, as illustrated by the variables chosen to measure environmental impacts by prominent research projects like the Political Instability Task Force (formerly known as the State Failure Task Force). In the Task Force's Phase III findings, the global model of state failure uses variables such as land burden, cropland area, irrigated land, access to safe water, and damage due to drought to assess environmental impacts, most of which are geared toward rural conditions (Goldstone et al., 2003). While variables such as access to fresh water may be relevant to both rural and urban populations, there may be qualitative and quantitative differences between rural and urban water scarcity problems.

This focus on rural areas is not surprising, given the historical interest in preserving unspoiled lands and conserving wildlife, and mid-twentieth century conceptions of global population patterns. Despite these

[10] See the brief article by Saleem H. Ali on page 34 for a discussion of the K-2 Peace Park proposal.

conceptions, over the course of the twentieth century, the Earth's population has become increasingly urbanized: a 2002 report by the United Nations Population Division (UNPD) suggests that by 2007, half of the world's population is expected to live in urban areas. UNPD (2002) expects urban areas to absorb almost all of the world's projected population increase through 2030, or 2 billion of a projected global population growth of 2.2 billion.

The rate of urbanization varies widely; while some already-urbanized areas will continue to experience steady growth, more rural areas in Africa and Asia are expected to urbanize rapidly. Most urban population growth will occur in cities with less than 500,000 inhabitants, not in megacities of millions. Researchers should focus not only on the overall impacts of urban growth on the environment, but also on the particular set of problems associated with rapid urbanization, such as decreased access to fresh water, lack of sanitation, new urban agriculture systems, and increased air pollution from rising transportation demands. This may require developing new indicators to track the quantity and quality of urban environmental conditions, including access to sanitation and water, level of waste per capita (especially in areas that import waste), and amount of open space per capita. Understanding how people interact with rural and urban environments will greatly improve environmental conflict and cooperation research.

Overall, these trends suggest that the research agenda shouldn't create a dichotomy between rural and urban environments but instead utilize a dynamic urban-rural continuum. Many development studies, such as those that have tracked remittances between urban and rural residents and analyzed the implications of these exchanges for human security, are positioned along this continuum (Leybourne, 2003). The continuum could also counteract the tendency to regard the edges of urban centers as marginal areas that do not respond to change, and might confirm the arguments of those who view them as highly dynamic regions that adapt to competition for scarce resources (Bryant et al., 2000).

7. Clarifying links between demography and environmental security

The concepts of "population explosion" and "youth bulge" have been traditional entry points for understanding demographic and environmental security issues. In a population explosion, the demands for basic, life-sustaining commodities such as food, water, and shelter increasingly pressure environmental systems and deplete finite stores of natural resources. The youth bulge theory contends that developing countries with a large proportion of young men are more vulnerable to conflict, especially when they compete for a dwindling resource base. While these concepts form the backbone of the Malthusian perspective refined over the last two hundred years, recent demographic discussions have focused on inequities and globalization's effect on communities' interaction with their local environments. Notions such as "ecological footprints" (the impact of consumption on the environment) challenge the Malthusian worldview championed by Paul and Anne Ehrlich, Thomas Homer-Dixon, and Robert Kaplan.

Global population is now projected to level off at about nine billion people around the middle of this century. Population growth rates have declined due to continued urbanization, decreased reliance upon child labour, the prevalence of social safety nets, and increased female employment outside the home. It is now widely accepted that inequities have greater social and environmental effects than population growth; two key issues—demographic inequities and gender inequality—have garnered increasing attention within the debate. Data from the United Nations Development Programme indicate that the consumption rate of the wealthiest 20 percent of the population in the developed world is 66 times that of the poorest 20 percent (1998). Economic globalization may have widened this gap, and Northern tastes and demands, rather than population growth, may drive over-exploitation of environmental resources by the rural poor. Gender inequalities, such as undervaluing women's contribution to human livelihoods, lack of access to education, and violence against women (especially during armed conflict), are also important issues for demography–environmental security research to explore. In this light, ECC researchers should look beyond population trends to focus on these demographic inequities.

Demographic change research has devoted considerable attention to the idea that environmental scarcity is a key factor in motivating people to migrate. As environmental refugees move from depleted rural areas to cities and more abundant rural areas, they are sometimes compelled to cross cultural and national boundaries, where their sudden presence can trigger violence. Assessing the plight of displaced peoples is difficult, however, because there is no reliable data for establishing baselines and trends, let alone causal sequences and impacts; this gap should be addressed for humanitarian reasons, as well as ecological and intellectual ones.

8. Advancing the debate between scarcity and abundance theorists

Günther Baechler (1998), Thomas Homer-Dixon (1999), and Michael Klare (2001), among other scholars, have strongly linked resource scarcity to violent conflict. They argue that population pressures, combined with natural resource scarcity, contribute to violence, especially in local or civil conflicts. Critics of this neo-Malthusian theory, such as Daniel Deudney (1990), suggest that fighting to obtain scarce resources is rarely rational, since there are cheaper solutions like conservation, trade, and substitution. Based on extensive empirical studies, other scholars, including Paul Collier and Anke Hoeffler (2002) and Indra de Soysa (2002), have countered that given certain social conditions, violent conflict is more likely if lootable resources are abundant.

Researchers must move beyond this either/or debate, because all of these arguments reflect real-world situations. In fact, it may be useful to integrate these theories to produce broader frameworks with greater explanatory power. For example, are abundant lootable resources more likely to lead to violent conflict under conditions of generalized scarcity, or vice versa? The Tanguar Haor wetland in northeast Bangladesh provides an abundance of fish during the rainy season and very little during the rest of the year. To survive, people store reserves when the fish are plentiful. Violence erupted after small groups used legal channels to monopolize the wetland during the dry season, when few people were there, and then continued this monopoly after migrants returned during the monsoon season. Perhaps the next phase of research into scarcity and abundance should integrate insights from both perspectives.

9. Developing analytical tools that can integrate knowledge about vulnerability and coping capacity into conflict and cooperation research

Researchers have studied the vulnerabilities associated with environmental stress for at least 70 years; most of this work was sparked by attempts to reduce the social and economic costs of natural hazards like floods, earthquakes, and severe weather. The majority of this research focused on the characteristics of environmental stress, such as magnitude, frequency, and location relative to human populations. Efforts to control environmental stress have led to cooperation at levels ranging from local (e.g., watershed and flood control) to international (e.g., dams on cross-boundary rivers) (see Burton, Kates, & White, 1993). This early work attributed the causes of “natural disasters” solely to the environmental stress itself, with little or no consideration of any intervening factors (Peet & Thrift, 1989).Over the past two decades, vulnerability research has matured and expanded its focus to consider how social, economic, and political conditions converge to differentiate people’s vulnerability to the same environmental stress (see Adger, 1999). Researchers increasingly recognize that social vulnerability is latent in human systems prior to the onset of an environmental stress; disaster occurs when the stress exceeds the coping capacity of the human system. Contemporary vulnerability research addresses the following questions:

- What are the causes of the vulnerability?
- What aspects of the human system are at risk?
- What might be done to improve human security and thereby reduce vulnerability?

Despite the obvious application of vulnerability research to ECC issues, these two research streams have not intersected. Recent attempts to map hot spots (areas of rising vulnerabilities) have been dominated by efforts to compile and standardize data to identify accumulating environmental stresses. However,

researchers need to move beyond these mapping exercises and embed the causal relationship between environmental stress and human vulnerability into these assessments.

10. Expanding methodological tools

We raise two questions regarding methodological tools:

a) While quantitative data are essential to analysis, they often cannot tell the whole story. Is it possible to strengthen analysis with the type of qualitative information produced by sociologists, anthropologists, historians, and other social scientists?

This perennial academic debate asks if research questions should be divided into those that require quantitative methodologies (e.g., an analysis of voting behavior) and those that require qualitative ones (e.g., an ethnography of a tribe in Irian Jaya). Can these two approaches be fruitfully combined? Environmental research lends itself to both quantitative and qualitative approaches; combining large studies and fine-grained case analysis is most likely to reveal the complex relationships among environment, conflict, and cooperation. Although it may be possible to establish general rules, the unique social dimensions of each incident can only be adequately captured through case study analysis, which may be essential for formulating policy and intervention strategies. Quantitative analysis can reveal the extent to which population and poverty are related to ECC, while qualitative analysis can differentiate specific cases so that each situation can be addressed based on its geopolitical and historical dimensions. For example, even though both Colombia and Haiti suffer from population pressures, environmental degradation, and long-term violent conflict, the situations emerged from qualitatively different contexts.

In the social sciences, researchers have concluded that quantitative and qualitative methods are not polar opposites but rather complementary forms of inquiry. Qualitative research has helped develop community buy-in for conservation measures, thereby providing a strong foundation for cooperation, and ultimately, for improving human security.

b) How can existing data be used with new visualization technologies like geographic information systems (GIS) and terrain mapping? What are the implications of such technologies for data collection?

New technologies can help researchers achieve their goals of identifying and visualizing relational patterns. Many researchers have already embraced the possibilities offered by GIS, and have used it to combine data with two-dimensional maps to reveal various social and environmental patterns. Other researchers have used systems modeling techniques to identify and establish relationships.

Emerging technologies such as terrain mapping, immersive environments, and virtual reality can effectively transform data into meaningful images. Terrain mapping applications literally add depth to geographic information systems by allowing data to be mapped on the “Z axis” of a three-dimensional grid. Researchers can model a flood’s dynamics to find the safest locations for new infrastructure projects, or forecast the location and depth of an earthquake’s epicenter. While science and engineering projects often use immersive environments and virtual realities, ECC researchers have not fully utilized these technologies to model ecosystem dynamics or environmental change (Center for Visualization and Interactive Systems, 2003).

The growth of wireless communication networks enables researchers to collect and analyze data in new ways: for example, studies on teenage smoking have utilized personal digital assistants to track smoking-related behaviors at different points of the day. As wireless networks expand in many parts of the world, researchers have already begun to use data collection devices that self-report levels of air pollution, traffic flow, or soil moisture. Computer graphics could also impact the way information is

gathered and communicated; while video games are mostly used for entertainment, they could provide a new way to reach the growing number of game players worldwide, especially youth, making them innovative tools for education and data collection.

Using such technologies requires careful consideration. For example, to use the new terrain visualization systems, places must be represented by not only longitude and latitude coordinates (x and y) but also altitude or depth coordinates (z). While such a change may appear simple, the additional data will need more storage capacity and, when considered on a global scale, could require a significant investment of time and resources. Researchers must weigh the potential uses of such technologies carefully to ensure that they add value commensurate to their costs. Tools like GIS render complex theoretical notions and combine disparate information sources; however, they still attempt to mirror the real world within the confines of a theoretical context. While new technologies may assist in research tasks, no new methodological innovation, tool, or computer program can replace robust theorizing about the links among environment, conflict, and cooperation. Nonetheless, these technologies could find a number of useful applications in ECC research, from mapping disputed resource areas or spillover effects of environmental problems, to developing user-friendly interfaces that allow the visual communication of large amounts of data to non-experts.

Gaps and Opportunities for Policy Analysis

We have identified five areas in which focused analysis could bolster policymaking. We have purposefully set these issues and recommendations within a human security context, recognizing that the traditional security community continues to debate the merits of departing from military-based security concepts. We have adopted this stance for two reasons: first, within the global environmental change (GEC) community, issues of conflict and cooperation receive relatively little attention, and when they are considered, GEC researchers use simplified results from studies investigating environmental processes (e.g., resource depletion will increase competition and thereby increase the risk of violent conflict) rather than explicit studies of human behavior.

Second, GEC research approaches the study of human activities from technological, economic, and institutional perspectives. Therefore, GEC agendas do not routinely include underlying issues that create imbalances in consumption and power. Human security could broaden the GEC agenda and provide a policy-relevant context for understanding human vulnerabilities to environmental stresses. Certainly, determining which regions and populations are most sensitive to environmental stress could build a strong foundation for policies.

1. Conservation policy can promote or deepen cooperation, but it can also promote conflict and insecurity; policy analysis should determine which strategies promote cooperation, and under what conditions they are likely to succeed

While some conservation measures have improved human security and promoted social stability, other conservation measures have protected nature while reducing human security and leading to violence and misery. For example, national parks are often located in remote areas that are not easily accessed or developed. In the developed world, creating such national parks can reduce tensions between environmentalists and potential developers, and also provide greater security to indigenous groups who may be granted privileged access to protected areas. In contrast, creating such national parks in a developing country may actually deprive people living at the subsistence level of their livelihoods or a critical buffer zone. Even land unsuitable for sustained use may be valuable during periods of scarcity (e.g., drought). It is important to analyze policy in terms of the effects it has—or could have—on cooperation and conflict.

2. While there has been a great deal of discussion about sustainable development, environmental and development policies often move in their own directions

The GEC community has focused much of its attention on understanding the effects of human activities on the earth's system and has irrefutably proved that biogeochemical degradation from anthropogenic sources is a major threat to ecological stability. However, the development community, including development banks, aid agencies, and development NGOs, has not participated in this research, mainly because it views GEC as a long-term process and therefore only incidentally important to its immediate agenda.

However, many development and aid agencies have embraced sustainable development, which is invariably presented as a process that must transcend social, economic, and political dimensions. Furthermore, these agencies are realizing that sustainable development policies must be tailored to capture regional and national capabilities and opportunities. This awareness could bring the GEC and development communities closer together, especially if both recognize that bolstering human security is a prerequisite for mitigating human-induced GEC and promoting sustainable development.

3. Policy analysis of urban development and planning should incorporate an environmental security perspective

Since much of the population growth in the coming decades will occur in urban areas, policies that seek to increase human and environmental security must contain elements that address issues particular to urban contexts. Such policies should aim to make growth more manageable and create cities that are both secure and livable. "Livability" has two major components: livelihoods and sustainability. A "livelihood" is a job that offers a living wage in close proximity to affordable housing and accessible services and amenities. Sustainability has three components: first, livelihood requirements must be met without degrading or destroying the city's environment. Second, cities must have a sustainable relationship with their outskirts, since cities in this increasingly globalized world often have large ecological footprints. Finally, ecological sustainability involves "intergenerational justice," in which current needs are met without compromising the ability of future generations to meet their needs in a sustainable way (Evans, 2002).

As environmental problems often cross boundaries, addressing an environmental problem in one urban area may involve different government agencies at local, state, and national levels. However, regional regimes to develop and communicate comprehensive plans can ensure that urban problems are not simply offloaded on someone else. Researchers should seek to improve their understanding of policy designs that encourage meaningful cooperation between citizens and multiple levels of government.

Urban growth, which is predicted to increase in the coming decades, can be managed to assuage environmental security concerns and satisfy the livability needs of a city's inhabitants. However, if managed poorly, it can increase stresses on ecological systems, exacerbate grievances between different populations in urban areas, and augment insecurity in both urban and rural areas.

4. Conservation and environmental development policies in areas emerging from protracted periods of violence, such as Afghanistan, Southern Africa, and Iraq, require more analysis

The original agenda for a 2003 meeting organized by the interim government of Afghanistan and UN-Habitat on the reconstruction of Kabul did not include a single reference to the environment. Conference organizers enthusiastically welcomed GECHS-UCI's offer to prepare a presentation on environmental security and the reconstruction of Kabul (Gaulin & Hokuki, 2002). The paper suggested that Kabul's successful reconstruction and pacification depended on meeting its needs for water, food, energy, and waste treatment in a sustainable way. Bringing together rival factions, building confidence in the government through elections and open media, investing in social infrastructure, creating jobs, and establishing satisfactory law enforcement capabilities are necessary for recovery, but these improvements alone are

insufficient. When social circumstances are challenging, however, environmental policy is commonly viewed as a luxury item easily cut from the reconstruction agenda. Policymakers must ask themselves: What environmental policies are fundamental and will help ensure the long-term success of post-conflict reconstruction?

5. **Policy analysis must rigorously assess the effectiveness and sustainability of policy interventions**
   High-quality data, indicating which programs have produced ecologically and socially sustainable practices, are necessary to fully investigate the theory that sustainable development can enhance human security, encourage social cooperation, and reduce social violence.

Conclusion

The rapid growth of environment, conflict, and cooperation research has exposed serious gaps in the development of this nascent field. Scholars could guide its evolution by taking the following steps: situate problems in a broader context; engage the literature on conflict and cooperation; conduct fine-grained, micro-level analysis; improve analysis of war's environmental effects; test the claim that conservation supports cooperation; study the urban dimension; clarify links between demography and environmental security; advance the scarcity/abundance debate; integrate knowledge about vulnerability and coping capacity; and expand methodological tools to include qualitative methods and new visualization technologies. This expanded analysis could support better policymaking by determining which conservation strategies promote cooperation; integrating development and environmental policy; incorporating environmental security into urban development and planning; deepening understanding of environmental policies in post-conflict situations; and rigorously assessing the effectiveness and sustainability of policy interventions.

Authors

Richard A. Matthew *is an associate professor of international and environmental politics in the Schools of Social Ecology and Social Science and the director of the Center for Unconventional Security Affairs at the University of California, Irvine.*

Michael Brklacich *is a professor in the Department of Geography & Environmental Studies at Carleton University in Ottawa, Canada.*

Bryan McDonald *is a doctoral candidate in the School of Social Ecology and the assistant director of the Center for Unconventional Security Affairs at University of California, Irvine.*

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