NEW PUBLICATIONS

Violent Environments

Nancy Lee Peluso and Michael Watts (Eds.)
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    453pp.

Reviewed by **Colin Kahl**

According to co-editors Nancy Lee Peluso and Michael Watts, *Violent Environments* is meant to provide "both a critique of the school of environmental security and alternative ways of understanding the connections between environment and violence" (p. 5). This new and thought-provoking book takes particular aim at the neo-Malthusian approach to studying environmental conflicts (an approach that many of the contributors refer to as the "greenwar" perspective). The book's harshest criticisms target the influential neo-Malthusian writings of three individuals: Robert Kaplan, the author of the infamous *Atlantic Monthly* article "The Coming Anarchy" (1994); Thomas Homer-Dixon, the North American pioneer of recent academic efforts to study environment-violence linkages; and Günther Baechler, the lead European researcher of the Environmental Conflicts Project (ENCOP). Homer-Dixon's work receives the lion's share of attention.

The first two theoretical chapters—Peluso and Watts' introductory essay and Betsy Hartmann's "Will the Circle Be Unbroken?"—advance a series of scathing criticisms of neo-Malthusian scholarship; they also put forth an alternative political-ecology approach to studying the environment-violence connection. These chapters frame the fourteen empirical ones that follow. Since the book is set up as a response to neo-Malthusian views, this review focuses on the merits of the book's major theoretical critiques and contributions as well as the degree to which the empirical chapters substantiate these arguments. Although numerous criticisms of the neo-Malthusian approach are advanced in *Violent Environments*, the following sections emphasize what I see as the most general and serious indictments. After

assessing these criticisms, the review then addresses the merits of the proposed theoretical alternative.

In the end, I conclude that, while *Violent Environments* presents a series of powerful and challenging insights, it ultimately fails in its stated goal of overturning dominant approaches to environmental security.
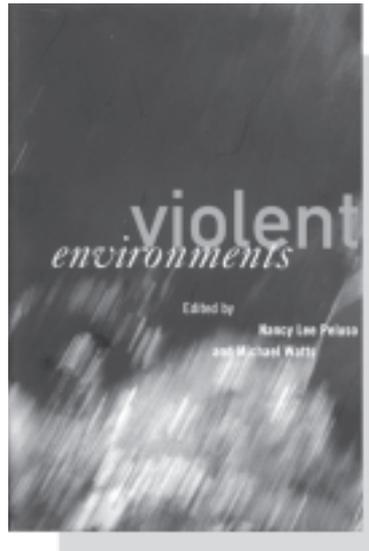
Environmental Determinism

Peluso and Watts criticize the current neo-Malthusian literature for its tendency toward environmental determinism. This criticism takes two forms. First, the authors claim that neo-Malthusians (Homer-Dixon in particular) tend to advance models that describe automatic and simplistic causal linkages between resource scarcity and violent intrastate conflict (i.e., models that formulate the relationship as follows: population growth + environmental degradation → resource scarcity → social, economic, and political dislocations → violence). Simple and direct models such as this, according to Peluso and Watts, ignore or downplay crucial intervening processes.

Second, Peluso and Watts accuse Homer-Dixon of arguing that scarcity is the only cause of violence. Together, these criticisms amount to a claim that neo-Malthusians naively believe that population growth, environmental degradation, and resource scarcity are necessary and sufficient conditions for violent conflict.

Although these criticisms have some merit, it is simply wrong to argue that Homer-Dixon (or those scholars who have built on his research) treats demographic and environmental pressures as universally necessary or wholly sufficient causal variables. As Homer-Dixon clearly states in his recent book:

"environmental scarcity produces its effects within extremely complex ecological-political systems…[W]hen it does contribute to violence…it always interacts with other political, economic, and social factors. Environmental scarcity's causal role can never be separated from these contextual factors, which are often unique to the society in question" (Homer-Dixon, 1999, p. 178).

In a similar vein, Baechler notes that "passing the threshold of violence definitely depends on *sociopolitical* factors and not on the degree of environmental degradation as such" (Baechler, 1998, p. 32, emphasis in original). There is still much to find problematic about this formulation, but the problems are related to how researchers underspecify the causal dynamic involved rather than how they omit intervening processes altogether. Moreover, the charge of determinism also ignores more recent neo-Malthusian scholarship that clearly identifies important intervening variables. Indeed, Homer-Dixon does discuss one intervening factor—the degree of political exclusion—that many of the contributors to *Violent Environments* repeatedly argue makes violence more likely. Political exclusion has also been systematically integrated into the general neo-Malthusian model by more recent work (e.g., Kahl, 1998; Kahl, 2000).

Conflating Sources of Scarcity

The chapters in *Violent Environments* by Peluso, Watts, and Hartmann (as well as a latter essay by James Fairhead entitled "International Dimensions of Conflict over Natural and Environmental Resources") all chastise Homer-Dixon for his definition of "environmental scarcity." This definition includes scarcities that emerge from population growth (demand-induced scarcity), environmental degrad-ation (supply-induced scarcity), and unequal resource distribution (structural scarcity). The authors reiterate a common claim: that Homer-Dixon's concept-ualization of environmental scarcity folds the causes of scarcity into its definition.

More damaging, according to all of these authors, is the way Homer-Dixon conflates social, economic, and political sources of scarcity related to maldistributions of resources (i.e., situations in which a resource may be plentiful in an absolute sense) with conditions in which resources are rapidly consumed or degraded. The authors allege that this conflation frustrates efforts to account for the differentiated effects of population growth, environmental degradation, and inequality. In his chapter, Fairhead goes so far as to claim that "[e]xamining issues of resource scarcity, degradation, and population in one concept is tantamount to analytical obfuscation" (p. 217). Hartmann also argues that to incorporate social distribution of resources into the definition of environmental scarcity creates too automatic a link between scarcity and conflict:

[P]olitical conflict often revolves around issues of resource control. This is the main tool by which [Homer-Dixon] is able to force very disparate conflictual situations into his universalizing model. The result is a model that is so inclusive as to be banal (p. 43).

Finally, Peluso and Watts contend that Homer-Dixon's definition promotes a tendency to "naturalize" and "depoliticize" scarcity, thereby masking the ways in which scarcity is socially, economically, and politically constructed.

These criticisms are fair in many respects. The causes of variables should never be incorporated into their definition, since doing so invites tautological analyses. Moreover, it is very important to consider the differentiated effects of both natural and social sources of scarcity. Nevertheless, even if Homer-Dixon's particular definition is flawed, it is still important to consider how population growth, environmental degradation, and maldistributions of resources *interact with one another* in ways that potentially contribute to both absolute and relative scarcity for vulnerable individuals and groups.

In their efforts to criticize Homer-Dixon's penchant for exaggerating the importance of population growth and environmental degradation, the contributors to *Violent Environments* commit an equally problematic error—they focus mainly on questions of distribution without fairly considering the ways in which rapid population growth and environmental degradation exacerbate conditions of inequality. In fact, Peluso and Watts go so far as to suggest that natural and social sources of scarcity are "wholly unrelated processes" (p. 18), and Hartmann asserts that distributional considerations are always more important.

Population growth, environmental degradation, and resource inequality are certainly different types of natural and social processes, and these natural and social processes do not always produce resource

scarcity. Demographic and environmental pressures, for example, sometimes encourage conservation, rehabilitation, substitution, and other adaptation efforts. But none of this negates the fact that, under many circumstances, the synergy of population growth, environmental degradation, and resource inequality *does* produce scarcity.

A simple hypothetical situation demonstrates this argument. Imagine two forty-hectare areas of arable land, each with ten farmers. One area has land distributed equally across the population (four hectares each), while in the second area 20 percent of the population controls 60 percent of the land (leaving eight farmers with only two hectares each). Now

should still all be considered in any comprehensive analysis of scarcity's emergence.

Unfortunately, most of the contributors to *Violent Environments* are so opposed to any argument remotely associated with Malthusianism (and so fixated on demonstrating that resource distribution and resource value are all that matter) that they fail to offer a complete account of the sources and consequences of scarcity. Hartmann's brief discussion of Philippine deforestation offers a prime example of this myopic emphasis on resource distribution. Hartmann begins by rejecting Homer-Dixon's claim that population growth and upland migration contributed to extensive deforestation in the Philippines. Hartmann instead

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imagine that each farmer requires at least one hectare to support his/her family. Under conditions of zero population growth and zero environmental degradation, there will be sufficient land to support each farmer's family, *even in the area with a highly skewed distribution of land*.

In contrast, if both areas have an annual population growth rate of three percent, the populations of each will double every 23 years. In less than fifty years, land will become scarce (relative to the survival needs of farmers) *even in the egalitarian area*. Poor farmers in the skewed area will experience scarcity in half that time. Now imagine that the supply of arable land in each area is not constant but in gradual decline due to soil erosion. In this scenario, poor farmers will experience scarcity even sooner under *both* scenarios.

Explaining or understanding the timing and magnitude of scarcity experienced by poor farmers in these two hypothetical areas requires a thoughtful consideration of inequality. But a full account *also* requires a consideration of the effects of population growth, environmental degradation, and the adaptive capacities of local communities and institutions; it also requires consideration of the various interactions among different types of demographic and environmental pressures. While demand-induced, supply-induced, and structure-induced sources of scarcity should not be collapsed into a single definition of "environmental scarcity," these different processes

argues that corrupt timber-licensing practices under Marcos and the voracious international demand for wood products combined to produce unsustainable deforestation by landed elites and logging companies. In her analysis, upland farmers were thus *victims* of environmental degradation rather than its source.

Hartmann's analysis is in most respects accurate, but her account fails to respond to the neo-Malthusian analysis of the Philippines' environment-violence connection—a connection that does not hinge on the causes of deforestation *per se*. Instead, Homer-Dixon and others are interested in the demographic and environmental sources of the communist insurgency in the Philippines. They claim that population growth and land inequality interacted with *many* different sources of environmental degradation (including the ones Hartmann mentions) to economically marginalize the swelling upland population in the Philippines, making peasants and indigenous communities there much more susceptible to recruitment by communist guerillas.

Beginning in the late 1960s, rapid population growth and significant land inequality in lowland Philippine growing areas forced millions of poor farmers to migrate to ecologically-vulnerable upland areas. Once in the uplands, many peasants had to rely on slash-and-burn agriculture to survive. Although slash-and-burn was not the main technique used to clear *primary* forests (since getting access to agricultural

plots in upland areas required prior clearing and road access provided by logging companies), slash-and-burn agriculture *did* result in the removal of residual *secondary* forests—a process that itself contributed to substantial soil erosion. Population growth and unequal land tenure in the lowlands thus combined with logging practices, migration, and slash-and-burn agriculture in the uplands to degrade the environment.

This degradation, in turn, made desperate farmers more desperate by forcing them to move to ever-more vulnerable land as soil fertility declined. Consequently, by the mid-1980s, thousands of marginalized individuals in upland areas had come to see communist rebels as the last best hope for ensuring their economic and physical survival (Kahl, 2000: chapter 3).

Rather than assuming *a priori*—as many *Violent Environments* contributors do—that only inequality is important, this discussion illustrates the utility of analyzing the various ways in which population growth, environmental degradation, and resource inequality interact with one another.

Ignoring the International Political Economy

Neo-Malthusian analyses and case studies often focus more on local processes than international ones. According to some chapters in *Violent Environments*, this focus results in "blaming the poor" for environmental degradation and resource scarcity. These authors also argue that the neo-Malthusian approach masks the activities of rich industrial states and their local allies in developing countries—activities that destroy the environment and deny the poor access to critical resources. Fairhead, for example, argues that international demand for certain raw materials and products often puts a greater strain on the natural resource base than "local" sources of environmental degradation.

This criticism is on target. Many neo-Malthusian authors explicitly or implicitly posit models lacking an international dimension. There is, however, no reason in principle to prevent a neo-Malthusian analysis from considering the international sources of demand-induced, supply-induced, and structure-induced pressures on resources.

Resource Use, Abundance, and Violence

Peluso, Watts, Hartmann, and Fairhead all argue that the neo-Malthusian preoccupation with scarcity forecloses the analytic possibility that violence centered on natural resources can occur under conditions other than resource shortage. In its empirical chapters, *Violent*

Environments provides numerous examples of disputes over the use and distribution of relatively abundant natural resources. James McCarthy's chapter ("State of Nature and Environmental Enclosures in the American West") analyzes the periodic violence over the past two decades deployed by both the "Wise Use" movement (ranchers, loggers, and miners) and radical environmentalists in their dispute over use of federal land in the western United States. In "Damaging Crops," Iain Boal discusses the neo-Luddite sabotage campaign directed against field trials for genetically-engineered plants in the British Isles. Both chapters detail very low levels of violence that stem from disputes over resource allocation and exploitation rather than from a quantitative decline in the resource base.

Similarly, in his chapter on the effects of India's Joint Forest Management policy ("Beyond the Bounds?"), Nandini Sundar argues that it is not scarcity but the assignment of rights over particular patches of forestland to individual villages that has contributed to forms of conflict over these resources. Finally, in "Violence, Environment, and Industrial Shrimp Farming," Susan Stonich and Peter Vandergeest study how industrial shrimp-farming in Southeast Asia and Central America has contributed to clashes (sometimes violent) between shrimp farmers and local communities, conflicts within local communities, and conflicts among shrimp farmers themselves. Unlike the other chapters, however, much of this conflict appears to be at least partially related to the environmental degradation produced by shrimp farming as well as the structural scarcity produced by shutting off access to valuable coastal areas formerly used by poor fishermen and farmers.

In other cases detailed in *Violent Environments*, relatively abundant but also incredibly valuable natural resources appear to be a source of much greater levels of violence. Michael Watt's empirical chapter ("Petro-Violence") points to the violence surrounding rich supplies of oil, especially in Nigeria. In "Are 'Forest' Wars in Africa Resource Conflicts?" Paul Richards analyzes the role that abundant sources of valuable minerals (most notably diamonds) play in Sierra Leone's longstanding civil war. In both analyses, locally abundant supplies of valuable minerals produce a "honey pot" effect, tempting the government, local communities, and rebel groups to violently vie to control these resources.

Since neo-Malthusians admit that scarcity is not necessary for conflict, the claim that disputes over

resource *use* can lead to violence does not, in and of itself, seem to challenge neo-Malthusian thinking. But cases of violence involving resource abundance are more challenging to neo-Malthusians, since they seem to invert the posited causal relationship between resource shortages and violence. Indeed, this exact point has been made by other recent neo-Malthusian critics working in the tradition of neoclassical economics (e.g., Collier, 2000; de Soysa, 2000).

Upon closer analysis, though, the abundance/ "honey pot" argument is less damning for neo-Malthusians than it appears. First, the claim that these resources are "abundant" does not match the global perspective advocated throughout *Violent Environments*. Certain mineral resources like oil and diamonds may or may not be locally abundant, but they are certainly scarce at the *global* level. This global scarcity (partially manufactured in the case of diamonds) helps explain why the resources are so valuable in the first place.

Second, even at the local level, the logic of the honey pot clearly applies more to conditions of scarcity than abundance. If natural resources were truly abundant locally, they would be worth less to opposing sides. However, as natural resources are consumed or degraded at unsustainable rates, their value increases, and rival social groups confront greater incentives to seize them. Michael Klare's (2001) recent research of contemporary clashes over non-renewable and renewable resources in Angola, Indonesian, and Malaysian regions of Borneo, Congo-Kinshasa, Sierra Leone, and elsewhere addresses this question. Klare has found that rising prices associated with declining resource supplies provide greater incentives for contending social groups and elites to capture control of valuable mines, oil fields, and timber stands (Klare, 2001).

Finally, the logic of the honey-pot argument applies much more to *non*-renewable resources than to the renewable ones at the center of most contemporary neo-Malthusian arguments (with the partial exception of timber). Because mineral resources tend to be much more valuable, geographically concentrated, and mobile than renewable resources (especially arable land), both the incentive and the capability to capture such non-renewable resources is especially high. Fairhead's chapter in *Violent Environments* appears to recognize this distinction, but its implications for the book's critique of neo-Malthusianism are not explored. In fact, none of the book's contributors articulate a reason why abundant supplies of arable land, fresh water, or other renewable resources would create *greater* incentives for resource conflicts than conditions of scarcity.

State-Sponsored Violence

Most neo-Malthusians locate the source of violence in "bottom-up" dynamics emanating from the grievances of (and animosities among) social groups. Neo-Malthusians contend that population and environmental pressures have the potential to disadvantage certain social groups while also placing strains on governing institutions. Together, pressures on society and the state encourage—and provide opportunities for—anti-state or inter-group violence.

Many of the chapters in *Violent Environments*, however, point out that the state itself can also be an agent of violence (i.e., violence can be "top-down"). The state may use violence to fend off threats to its legitimacy and survival stemming from resource competition in society.

According to Watts, Nigeria provides an excellent example of this dynamic. Here, the combination of (a) severe environmental degradation stemming from oil production, and (b) the transfer of almost all material benefits from the oil industry into central government coffers helps account for the high level of Ogoni grievances directed against the Nigerian state. Seeing Ogoni challenges as a threat, Nigerian elites have responded with harsh and violent forms of repression. Violence in this case thus stems less from the Ogoni grievances themselves than the Nigerian state's response to these grievances.

In other instances, the state and its allies may use (or at least rationalize) violence as a means of protecting the environment itself. The clearest example of this dynamic is Tanzania, where, according to Roderick Neumann ("Disciplining Peasants in Tanzania"), the government has deployed various types of violence against local communities, all in the name of protecting the country's valuable wildlife conservation parks.

Understanding that states can also be agents of repression and violence as well as order is vital to understanding contemporary armed conflicts in many parts of the world. *Violent Environments* is not alone in making this point. Similar arguments are common in the general literature on internal wars (e.g., Brown, 2000; Gagnon, 1994/95). And the role of state-sponsored violence has also been addressed by some recent neo-Malthusian accounts (e.g., Kahl, 1998; Kahl, 2000).

Essentializing Individuals and Groups In Conflict

Many chapters in *Violent Environments* also explicitly or implicitly criticize mainstream neo-Malthusian scholars in the environmental security field (most often political scientists and/or security specialists) for their tendency to treat individuals and social groups (especially ethnic and religious groups) as unproblematic, essentialized entities that crudely respond to deprivation and resource competition by resorting to violence. The authors argue that this analytical move offers very little insight into the "lived experiences of actors" and ignores the role of specific histories and historical processes.

Not surprisingly, the contributors to *Violent Environments*—who are anthropologists, sociologists, historians, geographers, and political ecologists—spend

(Re)Conceptualizing Violence

The sub-set of the environmental security literature that analyzes violent conflict tends to focus on sustained and organized physical violence (killing) between contending social groups. *Violent Environments* (re)conceptualizes violence to include *any* act that substantially threatens the physical or psychological well-being of individuals. Thus, environmental degradation and environmental enclosures are themselves acts of "violence" to the extent that they threaten human health, economic livelihoods, or certain cultural practices. Other types of violence cited in *Violent Environments* include: (a) general "structural violence" emerging from economic and political inequality; as well as (b) "discursive violence" related to the oppressive reproduction of certain historical

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considerably more time dissecting the local histories and practices of the relevant actors in their case studies. This rich cultural and historical approach is refreshing, and the contributors' careful attention to the social contexts in which the environment and violence intersect should be emulated. However, every event is not completely idiosyncratic. It is clearly possible—and in many instances desirable—to make generalizations about social processes and the motivations of individuals and social groups in particular temporal and spatial contexts. (Indeed, many of the contributors to *Violent Environments* make these generalizations, at least implicitly.) Rich cultural-historical accounts do not always or necessarily provide better explanations or understanding than spare theoretical models.

Moreover, while political scientists and security specialists are rightly criticized for paying insufficient attention to work by anthropologists, sociologists, and others, the contributors to *Violent Environments* also ignore a rich tradition of sociological and political theory on the causes of anti-state and inter-group violence. The contributors focus so much on neo-Malthusian writings that they almost completely ignore the treasure-trove of insights from the broader study of civil and ethnic wars in the fields of sociology, comparative politics, and international relations. In other words, both sides should listen more to each other.

memories, rhetorics, and experiences.

For example, most of the violence in Tanzania described in Neumann's essay is structural. The violent act in question here is the exclusion of marginalized communities from access to certain land. In his chapter on Central India ("Written on the Body, Written on the Land"), Amita Baviskar also provides a general indictment of the structural and discursive violence committed by the modern(izing) state. Baviskar argues that the state's boundary-drawing activities: (a) tend to create categories of tribe, caste, and gender based on an essentialist conceptualization of their qualities; and (b) simultaneously classify lands and forests for specific uses in the state's development project. According to Baviskar, these practices are themselves acts of violence against marginalized peoples—acts made even more violent by the repressive measures often used to enforce these boundaries.

The book's proliferation of different conceptions of "violence" reaches its height in S. Ravi Rajan's chapter on the 1984 Bhopal Gas accident in India (entitled "Toward a Metaphysics of Environmental Violence"). Rajan argues that this act of "environmental violence" involved and originated from: (a) *technological violence* (the direct human-health harms arising from prior decisions related to technical design and safety measures); (b) *corporate violence* (the reckless behavior and lackluster response by Union Carbide); (c) *distributive violence* (power asymmetries that worked to the advantage of large corporations

and exposed marginalized populations to disproportionately high-hazard risks); (d) *bureaucratic violence* (the absence of effective governmental regulation or preparation prior to the disaster as well as the inadequate post-disaster response); and (e) *discursive violence* (the rhetorical prioritization of economic development above all else by government officials, the rhetorical attempts by NGOs to appropriate suffering related to the accident to advance their own agendas, and the silence by social scientists who failed to propose workable solutions to these various problems).

Broadening the definition of violence in this way may help highlight the many threats to individuals (and the environment). But this act of conceptual stretching makes the study of "environmental violence" a study of almost everything bad rather than a study of environmentally-induced conflicts. In doing so, this analytic move complicates efforts at developing commensurable theories (i.e., theories that attempt to explain the same types of phenomena or "dependent variable"). After all, there is no reason to expect that the same theories would be able to simultaneously explain all forms of organized physical violence between contending groups *and* all forms of structural and discursive oppression: these phenomena are not analytically similar enough. Therefore, broadening the conceptualization of violence in the manner suggested by *Violent Environments* might undermine the ability of social scientists to test commensurable theories against one another as a means of accumulating knowledge.

It is also unfair to criticize neo-Malthusian theories of armed conflict for defining violence solely as physical violence between groups. Doing so amounts to criticizing neo-Malthusians for failing to explain something (all forms of oppression and harm to individuals) that they never claimed to explain. In short, the myriad ways in which people and the environment are harmed are all worth studying; but it is not clear that the best means of doing so involves lumping all such studies under the label of "environmental violence."

Other essays in *Violent Environments* reverse the direction of the environment-violence connection (as conventionally defined), arguing that physical violence (and especially preparations for physical violence) often degrade the environment. In "Invisible Spaces, Violent Places," for example, Valerie Kuletz looks at the ways in which nuclear testing and nuclear-waste disposal in the United States despoil the environment

and threaten the health of rural communities and indigenous populations in surrounding areas. The chapter on the consequences of nuclear weapons development in Russia by Paula Garb and Galina Komarova ("Victims of 'Friendly Fire' at Russia's Nuclear Weapons Sites") raises similar themes. These chapters clearly demonstrate the capacity of war and war preparation to damage the environment and imperil human well-being. Nevertheless, because these case studies focus on a different dependent variable (the violent causes of environmental degradation, rather than the violent consequences—conventionally defined—of this degradation) they do little to advance the book's anti-Malthusian position.

Summarizing the Implications for Neo-Malthusian Theory

The editors of *Violent Environments* explicitly frame the book as a comprehensive rebuttal to neo-Malthusian views, so the book should be assessed in this light. Although I have argued that many of the book's major criticisms are overblown, they are still valuable in pointing to some of the limitations of existing scholarship. However, most of these criticisms are not fatal to the neo-Malthusian enterprise. A more careful neo-Malthusian analysis (one that took seriously all the local and international sources of—and interactions between—population growth, environmental degradation, and resource inequality while simultaneously theorizing the role of the state and specifying critical intervening processes) could address most of these concerns while building on the insights of Homer-Dixon, Baechler, and others.

The Alternative: Post-Marxist Political Ecology

Ultimately, *Violent Environments* seeks to do much more than just critique dominant approaches to studying environment-violence linkages. The volume's more ambitious goal is to overturn neo-Malthusianism in favor of a self-described "radical" alternative—which could be described as post-Marxist political ecology (although Peluso and Watts simply refer to it as "political ecology").

This perspective contends that particular environments and environmental processes "are constituted by, and in part constitute, the political economy of access to and control over resources" (p. 5). Consequently, to understand the complex relationship between the environment and violence, *Violent Environments* recommends that analysts study both: (a) the political and economic structures and

processes (both international and local) that make certain resources valuable (and thus worth fighting over); as well as (b) the unequal distributions of natural resources that arise from political and economic structures and processes at the international and local level. The argument is informed by Marxist social theory to the extent that it places matters of production, labor, and distribution of material resources at the center of analysis. It is "post-Marxist" to the extent that the editors and contributors (often drawing on the writings of Michel Foucault) are also interested in the particular ways in which culture and discourse structure social relations and make certain material conditions meaningful.

This alternative perspective is important, and many of the chapters demonstrate that it can produce useful empirical insights about contemporary conflicts and violence. Nevertheless, as presented in *Violent Environments*, the post–Marxist alternative suffers from at least two major limitations. First, it is not a causal theory, at least not in any systematic sense. There is very little conceptual elaboration or theoretical operationalization of most of the approach's central features and posited causal connections. Although Peluso and Watts argue that

> the contours of the broad political economy (under which complex class and social forces operate) and how the rhythms of environmental change and accumulation shape the processes of exclusion, disenfranchisement, and displacement must be specified (p. 20),

neither the editors nor the contributors make those specifications in a very satisfying manner. Definitions of crucial concepts—capitalism, regimes of accumulation, production, labor, culture, and discourse—are not provided. The causal relationships among these factors and key social actors—such as the state, firms, middle and upper classes, peasants, and workers (not to mention indigenous cultural communities, religious organizations, NGOs, and other subsets of local and transnational civil society)—are also not described in much detail. In addition, the causal logic whereby political, economic, and discursive practices and structures constitute particular environments and patterns of violence is underspecified. Perhaps most importantly, the complex relationship *between* material processes and discursive ones (possibly the most perplexing and controversial analytical relationship in contemporary social theory)

is simply asserted rather than carefully theorized.

Consequently, *Violent Environments* fails to offer a systematic causal theory that can be tested against dominant approaches. Instead, at best, the book presents an alternative *ontology*—that is, an alternative set of underlying assumptions about the world and a laundry list of common concerns and themes. As Peluso and Watts admit, "[i]n our account, there is no single theory of violence as such…[W]e examine how causal powers, located in two spaces of production and power relations, create forms of social mobilization and conflict in specific circumstances" (p. 29). But until a more systematic theory is developed from this ontology, many of its insights will appear ad hoc and unfalsifiable; and its comparative analytic value for explaining or understanding the relationship between the environment and all forms of violence will remain limited.

Second, with a few notable exceptions, most of the empirical chapters of *Violent Environments* that seek to demonstrate the relative merits of the post–Marxist perspective over neo-Malthusian accounts of environmental conflicts simply fail to do so persuasively. To be clear, this is *not* because the chapters fail to demonstrate the importance of political and economic factors. For example, the chapters on resource-related conflicts in Borneo (Peluso and Emily Harwell), Nigeria and Ecuador (Watts), and Sierra Leone (Richards) all suggest that the structure of the international and local political economy, the nature of political and economic exclusion, local cultural dynamics, and discursive practices all play important roles in inter-group and anti-state violence.

Unfortunately, these chapters never evaluate the relative causal weight of political and economic structures and processes, culture, and discourse compared to the influence of demographic pressures and environmental degradation. They provide almost no detailed demographic data (e.g., data on population growth, population density, rural-to-rural migration, urbanization, changes in age structure, etc.). These chapters also provide little or no data on the extent of environmental degradation, and include no systematic data on trends in resource availability over time. In addition, the authors offer little or no analysis of the interaction effects among demographic pressures, environmental degradation, and resource distribution—an analysis that is essential if one is to establish the relative causal importance and relationships among these variables. Thus, the empirical case for the post-Marxist perspective is most

often presented without providing a persuasive case against the neo-Malthusian position.

The one exception to this tendency is Aaron Bobrow-Stein's excellent chapter on the conflict in Chiapas (Mexico) entitled "Between a Ranch and a Hard Place." Bobrow-Stein carefully evaluates the arguments and evidence put forth in Howard and Homer-Dixon's (1996) earlier study of Chiapas. After a review of available demographic and environmental data, Bobrow-Stein concludes that the underlying structure of the rural political economy was a more important driver of local grievances. (His evidence also suggests, however, that population growth—in the context of land inequality and a system of production that favored cattle ranching requiring little labor—contributed to peasant mobilization.) The theoretical and empirical conclusions of *Violent Environments* would have been much more compelling had more of its contributors followed the lead of Bobrow-Stein by carefully testing their claims against neo-Malthusian ones.

Conclusions

Violent Environments is a thought-provoking if not wholly satisfying volume that should be read carefully by all those interested in the various debates over environmental security. Many of the book's theoretical arguments and empirical findings provide important and timely challenges to mainstream approaches to studying the environment-violence nexus. Neo-Malthusian critics will find much to build upon in their efforts to develop a more systematic political economy/political ecology alternative. Although *Violent Environments* ultimately fails in its effort to overturn dominant approaches, neo-Malthusians ignore this book at their peril. W

Colin Kahl is an assistant professor in the Department of Political Science at the University of Minnesota.

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Sacrificing the Forest: Environmental and Social Struggles in Chiapas
By Karen L. O'Brien
Boulder, Colorado: Westview Press, 1998.
210 pp.

Reviewed by James D. Nations

Karen O'Brien's *Sacrificing the Forest: Environmental and Social Struggles in Chiapas* is an eminently readable description of the social, political, and economic forces that have produced the massive deforestation of the last remaining tropical moist forest in Mexico—a forest known both in Mexico and

internationally as the Selva Lacandona. Now a senior research fellow at the Center for International Climate and Environmental Research in Oslo, Norway, O'Brien conducted most of the research for this book as part of her Ph.D. dissertation at Pennsylvania State University on deforestation and climate change.

O'Brien uses the lens of political ecology to make the case that too many environmental researchers simplify the complex process that leads to tropical forest loss. She points to an ongoing paradigm shift in the way other researchers view deforestation—away from actor- or agency-oriented explanations and toward an emphasis on underlying forces. As O'Brien explains, this paradigm shift reflects increased understanding of the entangled interactions that produce tropical deforestation. A political ecology approach tends to show that tropical deforestation is not the result of single causes—logging corporations, rapid population growth, or national land-use practices—but rather a rational response to underlying forces that "span from the local to the global in scale."

O'Brien's analysis of the Selva Lacandona argues that its tropical forests "have been sacrificed to economic and social realities," and that these realities "are shaped by land and labor relations forged by state politics in Chiapas, land-use regulation established by the Mexican government, and the integration of Chiapas into the global economy" (p. 13). In *Sacrificing the Forest*, she presents a detailed analysis of the region's forest loss—focusing on the interwoven roles of: (a) road construction for logging and oil exploration, (b) farmer colonization, (c) cattle ranching, and (d) the market economy.

O'Brien also painstakingly demonstrates that deforestation patterns vary substantially by subregion within the Selva Lacandona. These variations depend on "both external pressures and internal dynamics" and include such factors as "extractive industries, agricultural transformations, agrarian politics, political upheaval, and conservation policies" (p. 59). One of the book's nine chapters compares satellite images representative of the Selva Lacandona in 1974 and 1989 to illustrate the progressive but variable deforestation in different sectors of the forest. In specific cases, these satellite images illustrate the impact of armed conflict on deforestation patterns. A 1979 image of the border between Chiapas and Guatemala shows growing colonist communities and forest clearing on the Guatemalan side, but very little deforestation in Mexico. Images from ten years later, however, show that the Guatemalan settlements have all but

disappeared; most of the Guatemalan colonists have fled into Chiapas to escape the Guatemalan Army's counterinsurgency campaign. Meanwhile, deforestation on the Mexican side of the border has expanded dramatically—the result of refugee settlements, Mexican road construction, and a conscious program of settling Mexican farmers along sensitive border areas to guarantee national sovereignty.

O'Brien then expands her discussion of political impacts on the Selva's forest cover by focusing on the 1980s guerilla war in neighboring Guatemala, which forced 46,000 Maya across the international border into Chiapas. She also examines the 1994 Zapatista revolt, noting that the socio-economic and political conditions that prompted that rebellion continue to extract a negative toll on the region's environment, resulting in an increasingly denuded landscape. The situation, she adds, is exacerbated by an ongoing struggle in Chiapas among government officials, conservationists, and those social organizations that were created to effect demands for more land and social services in this last frontier of 21st-century Mexico. "The distinction between environmental struggles and social struggles," O'Brien writes, "is emerging as one of the most critical challenges facing Chiapas today" (p. 34). She concludes that, without coordination, neither the conservationists' struggle to save the forest nor the social activists' struggle to improve human conditions can prevent the demise of the Selva Lacandona's natural environment—or any other tropical forest. Instead, she states that "[u]nless the two struggles can develop a common ground, tropical forests will continue to be sacrificed to the realities of the day" (p. 14).

While pointing to the complexity of forces that have led to massive deforestation in the Selva Lacandona, O'Brien tends to underplay the role of human population growth in forest colonization and deforestation. Although she notes that human numbers rose from fewer than 50,000 in 1950 to 300,000 in 1990 (today they are approaching 400,000), she defuses this point by concluding that colonization of the forest "reflects historical structures brought about by agricultural transformations and the ability of a landowning elite to amass and preserve large estates, at the same time maintaining access to a cheap labor force" (p. 116).

Still, O'Brien's success in explaining the interconnected forces that produce forest loss in the Selva Lacandona has allowed her to create a book that makes a solid contribution to the literature on global

tropical deforestation while also providing the best case study to date of Mexico's last remaining tropical moist forest. *Sacrificing the Forest* will be of solid interest to social scientists, political analysts, and conservationists alike. **W**

James D. Nations is Conservation International's vice president for development agency relations in Washington, DC. Trained as an anthropologist at Southern Methodist University, he lived five years in Chiapas, including three years as a Lincoln-Juárez Scholar with an indigenous Maya group in the Selva Lacandona and two years in highland Chiapas as a post-doctoral fellow with the Center for Latin American Studies, University of California, Berkeley.

Environmental Change, Social Conflicts and Security in the Brazilian Amazon: Exploring the Links

By Alexander López
Oslo: Department of Political Science, University of Oslo, 2001. 228 pp.

Reviewed by Thomaz G. Costa

In *Environmental Change, Social Conflicts and Security in the Brazilian Amazon*, Alexander López studies the link between environmental change and social conflict in the Brazilian Amazon since the 1970s. During this period, Brazil's central and regional governments have continued to open the Amazon to development through a diverse set of strategies—including new models of populating selected areas in the region with immigrant-farmer colonization as well as agricultural production and natural-resource exploitation. In this published doctoral dissertation, López strives to explain the region's social conflict through an integrated model that includes such independent variables as the social distribution of land and income, population growth and migration, and resource allocation.

Through richly descriptive material, the author illustrates the impact on the Amazon of (a) deforestation, (b) the introduction of new and extensive agricultural practices, and (c) the continued development of mining projects in the region. He also outlines how Brazilian public policy has induced migration and development in the region through subsidies and projects from hydroelectric dams and logging parcels to roads and electrification facilities. This new wave of human presence and economic activity has affected not only the Amazon's natural environment but also its social relations. As López notes, Brazil now has to cope with environmental management problems and simmering conflict (among colonists, indigenous populations, landowners, and federal and local political actors) in many sub-regions of the Amazon.

López details how these dynamics have played out in the state of Roraima, where the federal government offered incentives to attract ranchers and miners to a new agricultural frontier in order to generate quick economic growth as well as provide employment for migrant Brazilians. As a result, Roraima is now beset with large land tracts that have poor vegetal cover, weakening the protection of its river's headwaters and exposing unfertile soil to erosion. Public policies and subsidies also brought increased settlement and the construction of hydroelectric dams and road links to the interior of the state of Pará, exposing unfertile soil there to erosion as well as impacting negatively on biodiversity.

López also outlines how the Brazilian federal government's incentives for greater exploration of the mining province of Carajás in the 1970s led to an explosive influx of migrant miners who were forced to live under poor conditions. Violent social conflicts ensued as disputes for land pitted traditional residents (both *caboclos* and native Indians) against newcomers. Two decades later, Carajás is still plagued with: (a) tension over land disputes and property rights; (b) an expansion of deforestation and resulting unfertile cover; and (c) a lack of proper control over the exploration and commercialization of natural resources—including the labeling of some wood exports as ecologically friendly.

Indeed, the Brazilian Amazon's human face has changed dramatically in the last thiry years. The region now boasts two metropolises (Manaus and Belém) and several regional centers with large urban populations of 100,000 to 500,000 people (such as Porto Velho, Santarem, Tefé, and Cuiabá e Boa Vista). Yet poverty remains endemic in rural and river-bank areas. Despite traditional Brazilian optimism about developing the Amazon (Faulhaber & Mann de Toledo, 2001), López contributes to an prevailing pessimism about *sustainable* development in the region (see Hall, 2000); he stresses the continued failure of Brazilian public policies to preserve the Amazon's

natural environment while advancing its economic development. López also reinforces arguments by Hurrell (1991), Brigagão (1996), and Costa (2001) about how the Brazilian government is making the Amazon a national security concern without addressing its internal social conflict.

By combining descriptive material with an examination of the interplay among a wide range of variables, the author does risk reducing the academic rigor of his work. The myriad of arguments and relationships presented in *Environmental Change* somewhat confuses the linkages Lopez is trying to make. Despite this difficulty, López's dissertation adds to our understanding of the relationship between environmental change and social conflict as well as of the interactions between humans and, the natural environment in the Brazilian Amazon. W

Thomaz G. Costa is a professor of national security affairs at the National Defense University (NDU) in Washington, DC. He is also a lecturer and course director at the NDU's Center for Hemispheric Defense Studies.

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Gender, Peace and Conflict
Inger Skjelsbaek and Dan Smith (Eds.)
London: Sage Publications, 2001. 228 pp.

Reviewed by *J. Ann Tickner*

In spite of the stereotypical association of women with peace and the substantial numbers of women in peace movements, relatively little scholarship in the area of peace and conflict research has paid attention to women or gender. And while feminist scholars have addressed issues of gender, peace, and security, this body of literature has remained on the margins of international relations and peace research.

Gender, Peace and Conflict is therefore a welcome addition to the peace research literature. Co-edited by Dan Smith, the then-director of the International Peace Research Institute, Oslo (PRIO) and Inger Skjelsbaek, a researcher at PRIO, *Gender, Peace and Conflict* includes contributions from both female and male academics, international policymakers, and human rights activists from a wide range of countries. The book is based on the proceedings of a 1996 joint meeting organized by the United Nations Division for the Advancement of Women (DAW) and PRIO— an example of productive collaboration between a research institution and an intergovernmental organization. Five of the book's 10 chapters are primarily theoretical, while four others present case studies drawn from recent or ongoing conflicts in South Asia, Colombia, Sri Lanka, and the former Yugoslavia. One of the central questions of the book (discussed in some detail in a case-study about women policymakers in Scandinavia) concerns whether greater participation by women in agenda-setting and decision-making would make a difference with respect to conflict resolution.

Theoretical chapters by Dorota Gierycz, Dan Smith, Inger Skjelsbaek, Michael Salla, and Errol Miller each challenge the problematic essentialist association of women with peace that has long haunted feminists. Many feminists have claimed that equating women with peace has the effect of idealizing women and rendering their voices less authentic in the "real world" of security politics. The equation has also contributed to the perception of women either as a "protected" category (a perception that today's wars have severely discredited) or as victims devoid of agency. In *Gender, Peace and Conflict*, a variety of women's voices bears witness to the many and varied ways women contribute to conflict resolution, often

outside our focus of attention.

The book also attests to the many ways in which conflict negatively affects women's lives. For example, during war there is usually reduced access to basic services—such as food, education, and health care. Under these conditions, women (as primary caregivers) government. While it is often easier for women than for men to forge linkages and travel across ethnic boundaries, women rarely participate in setting the official agendas for conflict resolution. In "Integrating a Gender Perspective in Conflict Resolution: The Colombian Case," Svetlana Slapsak tells how women

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None of the authors endorse the problematic equation of women and peace, but all in one way or another suggest that women constitute a still largely untapped potential for peacebuilding.
—J. Ann Tickner

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face severe challenges in providing for their families. In cases where men have gone off to fight, women are left as sole supporters of families. Militarized societies are more hierarchical and patriarchal; frequently, the hatred and violence of ethnic wars are directed against women's bodies.

All of the authors in *Gender, Peace and Conflict* define gender as variable—a socially, historically, and culturally constructed relationship between women and men. Not only does this definition allow them to get beyond the problematic association of women with peace, it also offers the possibility of more nuanced ways to discuss class as well as race and ethnic identities—all important contributors to many of today's conflicts. Defining identities as socially constructed and variable allows us to envisage ways of changing these identities and thus to envisage possible paths to a less conflictual world. While most of the authors are skeptical about whether individual women make a difference in the policy process, all agree that peace and security would be better served by greater representation of women in national and international policymaking. An important theme throughout *Gender, Peace and Conflict* is that peace is not just the absence of conflict but also involves economic justice, human rights, political participation, and gender justice. The authors also argue that gender justice (which requires struggle by both women and men) should be part of any comprehensive definition of peace and security.

Most of the case studies of the volume suggest that, while women are actively working on the ground for peace and justice, they tend to be shut out from official processes of peacebuilding. For example, in "Gender Difference in Conflict Resolution: The Case of Sri Lanka," Kumudini Samuel tells us that women took an active role in the 1980s Sri Lankan peace movements but were completely left out of official negotiations between the Tamils and the Sri Lankan

in the Yugoslav conflict challenged stereotypical ethnic identities by taking over everyday interethnic-group communication—a move motivated partly by their marginalization from high politics. And, as Eva Irene Tuft suggests in her discussion of the conflict in Colombia ("Integrating a Gender Perspective in Conflict Resolution: The Colombian Case"), women are affected by conflict differently than men. While men tend to suffer from a violation of civil and political rights, women are at particular risk of socio-economic rights violations, particularly when those women are displaced.

The case studies use a broad definition of security. In the context of the India-Pakistan conflict, Anuradha Mitra Chenoy and Achin Vanaik challenge us ("Promoting Peace, Security and Conflict Resolution: Gender Balance in Decisionmaking") to move away from a state-centric definition of national security to one that includes the material needs of people as well as their need for participation in decisions that affect their lives. Chenoy and Vanaik suggest a model of conflict resolution based on people-to-people-level contact—an area in which, the authors claim, women's organizations have been playing a particularly important role. For all of these authors, moving societies in more peaceful directions requires transforming gender relations.

Running through the various chapters are two questions frequently asked of feminists: First, what would happen if women were more equally represented in positions of power? Second, would this change improve chances for peace and enhance efforts to resolve conflicts? The Scandinavian countries are among the few nations in which women in leadership are close to a critical mass and from which we might be able to find some answers to these questions. While claiming that it is still too early to tell if women's empowerment will lead to fundamental changes,

Drude Dahlerup suggests in "Women in Political Decisionmaking: From Critical Mass to Critical Acts in Scandinavia" that a critical mass of women may have some effect on the political culture and the political agenda. None of the authors endorse the problematic equation of women and peace, but all in one way or another suggest that women constitute a still largely untapped potential for peacebuilding. These authors also go beyond advocating adding more women to existing social, political, and economic structures. They all realize that achieving peace and security involves changing these structures themselves in ways that diminish violence—including gender violence and the many ways in which women suffer from hierarchical and patriarchal structures of inequality and oppression.

While most of the theoretical insights in this book are probably already familiar to feminists, they will be less familiar to those working in peace and conflict research. *Gender, Peace and Conflict* is therefore an important contribution. Its message—that we need to take gender seriously to better understand the causes of conflict as well as possible paths to its resolution—deserves more attention. This book should be read by all those interested in security and conflict resolution.

J. Ann Tickner is professor of international relations and director of the Center for International Studies at the University of Southern California. She recently published Gendering World Politics: Issues and Approaches in the Post-Cold War Era *(Columbia University Press, 2001).*

Resource Wars: The New Landscape of Global Conflict
By Michael T. Klare
New York: Henry Holt and Company, 2001.
289 pp.

Reviewed by **Leslie Johnston**

In examining the potential for emerging conflicts, Michael T. Klare's *Resource Wars* uses a natural-resource lens. Klare argues in the book that competition and control over critical natural resources will be the guiding principle behind the use of military force in the 21st century.

Klare explores this "new emerging landscape" with a three-part framework: (1) the relentless expansion in worldwide demand *(globalization/increased consumer consumption)*; (2) the emergence of significant resource shortages *(scarcity)*; and (3) the proliferation of ownership contests *(elite competition)*. These three factors have already received extensive treatment in both political-ecology and resource-scarcity debates concerning the multifaceted role of natural resources in conflict (Diehl & Gleditsch, 2001; Peluso & Watts, 2001). Although Klare's contribution raises important issues for policymakers, *Resource Wars* does not substantively contribute new insights to the existing discourse.

As Klare highlights throughout, natural resources have indeed been an underlying factor in many conflicts. These resources can contribute to conflict through either greed-induced or grievance-induced incentives; they have also been used as strategic military targets as well as financial resources for conducting war. Each of these pathways differs fundamentally and thus presents different implications for analysis.

However, Klare fails to make clear distinctions between these different pathways and even confusingly conflates them by using broad terms such as "resource wars" or "water wars." For example, his discussion concerning "water wars" merges the issues of (a) water as a strategic military target, and (b) water scarcity as a source of conflict. Historically, water has been a strategic military target; water supplies have also been damaged as a consequence of military activity. However, water *scarcity* has rarely caused or contributed significantly to conflict between countries. Indeed, Aaron Wolf has concluded that, "[a]s near as we can find, there has never been a single war fought over water" (Wolf, 1999).

Additionally, a broader discussion of those factors that *inhibit* such resource conflict would have put the potential of "water wars" in perspective. Such factors include not only the balance of power in a given situation, but also the costs (economically and politically) of going to war over water. In fact, tensions over water at the *sub-national* level are much more likely, and Klare fails to explore this aspect sufficiently with respect to either intrastate conflict or regional instability. While the likelihood of conflict in certain geographical regions over water cannot be ignored, the relationship of water scarcity to conflict is more complex than suggested in *Resource Wars*.

More broadly, Klare's discussion of various natural-resource conflicts oscillates between interstate and

intrastate conflict without providing a clear distinction of the processes associated with each type of conflict and their potential relationship to one another. In some cases, the author neglects the implications of natural-resource extraction for potential intrastate conflict. For example, in South America, a substantial amount of oil and gas reserves are located under indigenous peoples' lands and are therefore highly politically and ecologically sensitive. In other cases, Klare mentions

Rights Watch estimated that the violence killed at least 500 people, the majority of whom were Madurese. Two years later, violence erupted again, leaving over 200 dead. This latest period of violence was initially between Madurese and Malays, with the non-Muslim Dayaks eventually joining with the Malay side. The violence ended following the departure of virtually all of the Madurese (International Crisis Group, 2001).

Research has revealed that the conflict between

While the likelihood of conflict in certain geographical regions over water cannot be ignored, the relationship of water scarcity to conflict is more complex than suggested in *Resource Wars*.
—Leslie Johnston

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examples of resource extraction and conflict (such as those surrounding oil extraction in Nigeria and Colombia) only in passing.

When Klare does discuss intrastate conflict in more depth, he focuses primarily on grievance-induced incentives without adequately treating other essential factors. Although minimum thresholds of grievance are indeed required for conflict, the capacity of groups to translate their grievances into violent collective action depends on their ability to secure resources—human, financial, military and other assets—in pursuit of group objectives. However, *Resource Wars* offers only a limited discussion on the ability of state institutions (a) to address the root causes of conflict, (b) to manage pressures that might generate it, or (c) to mediate among potentially conflictual parties. Aggrieved groups with access to resources may, of course, choose to channel their grievances peacefully and constructively within the political system in order to achieve a political objective. But whether these groups take that path occurs depends in large measure on both the state's ability to control or demobilize conflict entrepreneurs as well as the existence of legitimate channels for conflict resolution.

For example, Klare's examination of fighting in the West Kalimantan region of Borneo only treats how logging and associated resource wealth contributed to the conflict. But to understand fully this situation's complex set of underlying dynamics, it is important to know why only the Madurese of West Kalimantan were targeted when other transmigrant groups were equally if not more involved in logging activities there. In early 1997, violence erupted in West Kalimantan between Dayaks and Madurese in the district of Sambas, spilling over to adjoining districts. Human

the Dayaks and Madurese in West Kalimantan can be attributed to the clash of discourses of territorial control and the specific relations of territory to political and cultural identities.[1] Residing in a state that lacked political will and the capacity to deter the violence, the Dayaks translated their grievances into violent collective action. Local police did not react quickly enough to effectively prevent isolated clashes between individuals from developing into a wider conflict. Thus, an increasingly bloody set of interethnic relations served as an expression of the Dayak community's lost power. Dayaks also viewed the Madurese as refusing to take community responsibility for the criminal acts of individuals, whereas the Madurese saw this responsibility as belonging to the state. Additionally, the Dayaks saw only the Madurese and not other transmigrant groups as disrespecting and dishonoring their culture and identity. A full understanding of these roots to the conflict is necessary if one wants to devise appropriate conflict-prevention or mitigation interventions. In this context, logging is a proxy for these underlying issues, and Klare's strictly natural-resource analysis focusing on timber extraction loses the complexities of the situation.

Such elisions are the consistent and major flaw of *Resource Wars*. By painting globally with a broad brush of green, black, red, white and blue—colors symbolizing timber, oil/coal, copper/iron/minerals, diamonds/gems and water—the book fails to sufficiently explore the complexity of factors contributing to (and inhibiting) conflict at both inter- and intrastate levels. This weakness is further enhanced by such broad generalizations such as "The modern era has known its share of water wars as well" that only appear to sensationalize the topic for the general

public. To understand the full potential for conflict in any of the situations Klare's analysis requires the consideration of other factors: (a) whether organizations can recruit manpower, weapons, and other resources to advance their interests; (b) whether the state can address root causes of violence at the national or international level; (c) whether conflict entrepreneurs can be controlled or demobilized; and (d) whether opportunities exist for legitimately channeling grievances. W

Leslie Johnston is a senior environmental policy advisor for the U.S. Agency for International Development's (USAID) Bureau of Policy and Program Coordination. The opinions expressed herein are solely those of the author and do not represent the views, positions, or policies of USAID or the U.S. government.

NOTES

[1] These comments draw heavily from Peluso & Harwell (2001).

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Environmental Peacemaking

Ken Conca and Geoffrey D. Dabelko (Eds.)
Baltimore and Washington, DC:
   The Woodrow Wilson Center Press and
   Johns Hopkins University Press, 2002.
   200 pp.

Reviewed by **Rodger A. Payne**

Ken Conca and Geoffrey Dabelko have put together an interesting and useful volume on the potential linkages between environmental cooperation and peace. From the outset, they seek to discover whether shared environmental problems might set in motion social and political changes that would promote peace rather than violence in this issue area.

More specifically, in the introductory chapter to the volume, Conca hypothesizes that environmental peacemaking might occur through two pathways. First, pollution and/or resource degradation might create opportunities for mutual gains through cooperation. The challenges are to address the real and potential problems related to environmental scarcities and to overcome broader problems often said to be endemic to international politics: distrust, uncertainty, self-interest, and exploitation of short-term gains. Conca theorizes that environmental problems might create opportunities because of issue-specific technical complexity, ecological interdependence, and the need for anticipatory action to head off future disasters.

Second, Conca argues that shared environmental problems might strengthen what he calls "post-Westphalian"[1] dimensions of global politics: various political and social actors can build and exploit trans-societal linkages in order to construct new norms of environmental responsibility as well as peaceful conflict resolution in this issue area. In practice, these results would likely occur because such linkages would create shared collective identities. A post-Westphalian world would also entail the probable transformation of various institutions—and perhaps even states—into more open, inclusive, and accountable entities.

To explore these two pathways empirically, *Environmental Peacemaking* includes half a dozen case-study chapters covering many of the most important parts of the world. Specifically, the case chapters examine: shared seas in the Baltic and Caspian; complex river systems in South and Central Asia; pollution management along the United States-Mexico border; and interrelated land, energy, and water issues in southern Africa. These chapters are

authored by scholars with substantial expertise in the various regions. (Ashok Swain, for instance, has published extensively on water issues in India and South Asia.) The editors also intentionally focus on *regional* cooperation because the transformations they are looking for require interstate changes. Moreover, a regional perspective allows them to examine shared-commons and upstream/downstream concerns. Thus, even though the ecoviolence literature often examines subnational processes, the regional level of analysis

between Conca's theoretical hypotheses and the real world data. They find that environmental cooperation does at least sometimes offer prospects for changing strategic dynamics and strengthening post–Westphalian tendencies. More precisely, they find that cooperative endeavors are most promising when they are constructed so as to promote cooperative habits, change interstate negotiating dynamics, and deepen nonviolent trans-societal relationships.

Students, scholars and policy actors interested in a

Much more needs to be learned about burgeoning environmental cooperation, and this is a sound, forward-looking early contribution. —Rodger A. Payne

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studied here seems necessary. Conca and Dabelko do not look for global changes because they justifiably see ecological problems as having a real and more recognizable effect at regional levels.

The cases in *Environmental Peacemaking* were selected at least in part because the regions discussed already exhibited at least nascent environmental cooperation. So the editors perhaps stand guilty of selecting their data on the dependent variable—an accusation often levied by critics against scholars engaged in research on ecoviolence. However, Conca and Dabelko already warn against making too much of their results, since even the cooperation in the regions they study is at best incipient. They freely admit that they are not engaged in formal testing of various hypotheses. The project is nonetheless valuable for a variety of fairly obvious reasons. Much more needs to be learned about burgeoning environmental cooperation, and this is a sound, forward-looking early contribution. Additionally, even tentative conclusions might be useful to policymakers looking to resolve conflicts peacefully.

In general, the case chapters of *Environmental Peacemaking* are informative and well written. As is true of most edited volumes, the individual authors tend to emphasize different actors, interests, and processes related to the questions at hand, and they do not always faithfully stick to the theoretical concerns raised by the editors. At worst, the additional ideas and themes included by the chapter authors serve as a minor distraction. Sometimes, however, their tangents offer potentially valuable ways of thinking about and understanding related questions concerning the environment and the various regions and institutions discussed in the case studies. In their concluding chapter, Conca and Dabelko briefly review the fit

number of research areas will value *Environmental Peacemaking* for the indirect contributions it makes to broader literatures. Indeed, the empirical descriptions offered in the cases suggest a number of potentially rich future research threads. For instance, Conca and Dabelko conclude that the evidence from several cases raises the potential problem of unsustainable environmental cooperation, which certainly merits serious future consideration.

Another prospective line of research might involve explicit examination of transgovernmental networking. Several of the case chapters identify important cooperation of this type in the regions. In "Environmental Cooperation and Regional Peace: Baltic Politics, Programs and Prospects," Stacy VanDeveer demonstrates that ministerial meetings involving environment, defense, health, transportation, economic, finance, and even cultural officials in the Baltic region helped establish important goals and policy innovations that often account for a substantial volume of like-minded national-level activity. Similarly, Larry Swatuk ("Environmental Cooperation for Regional Peace and Security in Southern Africa") finds the roots of the Southern African Power Pool (a common electricity market among the countries of the South African Development Community) in an intergovernmental Memorandum of Understanding, signed in 1995. And in "Beyond Reciprocity: Governance and Cooperation around the Caspian Sea," Douglas Blum refers frequently to the transgovernmental cooperation in the Caspian Environmental Program (which has deputy national environment ministers or their equivalent on its steering committee as well as high-level finance and foreign affairs ministries playing significant roles as well).

As Slaughter's (1997) work demonstrates, these kinds of interstate networks have been growing in a variety of issue areas, and might provide uniquely effective, flexible, and timely opportunities for concerted action—even as they pose challenges related to their potential lack of accountability and legitimacy. Nonetheless, transgovernmental networking tends to bolster national legal initiatives, and therefore does not typically lead to the creation of formal international institutions. To employ the terminology of Conca and Dabelko, transgovernmental networking needs to be distinguished from post-Westphalian order, since Slaughter sees these networks as posing an alternative to both traditional interstate organizations and less formal notions of global governance.

With a few modest changes, *Environmental Peacemaking* could have been a stronger volume. First, given renewed global attention to ongoing conflicts in the Middle East, and the prominence of Middle East water scenarios in the ecoviolence literature, the volume would have benefited from the inclusion of an additional case focused on the region. Next, despite the fact that the manuscript made available for this review was dated January 2002, neither the chapter by Erika Weinthal on Central Asia ("The Promises and Pitfalls of Environmental Peacemaking in the Aral Sea Basin") nor Blum's on the Caspian region devote any attention to the new political dynamics of the post–September 11 world. It now seems apparent that U.S. policy towards that part of the world is changing significantly, and concerns about oil and military security will quite possibly trump any nascent environmental cooperation. Similarly, Pamela Doughman's chapter ("Water Cooperation in the U.S.-Mexico Border Region) analyzes United States' immigration concerns along its Mexican border; but her analysis ends with the September 2001 meeting between Presidents Bush and Fox that many saw as a major step towards a far more open border. If new security concerns cause even tighter border controls to be implemented, those actions will surely undermine efforts to build collective identity in the area.

Finally, the editors could have elaborated on what a "post-Westphalian" order might look like based on the incipient processes they might see in world politics. Given the brief discussion in *Environmental Peacemaking* of institutional transparency, inclusion, and accountability, Conca and Dabelko seem to have in mind some sort of democratization of global politics. However, this point is never made explicit. If the authors had embraced such a vision, this empirically-grounded project could perhaps be gainfully linked to other much more theoretical efforts on "cosmopolitan" governance (Held, 1995) and community (Linklater, 1998). The case chapters, which sometimes discuss the effects of "top-down" decisions rendered by officials at the World Bank or Global Environment Facility, sometimes serve to undercut the notion that democratizing forces are at work in world politics. That, too, is a point worth making more explicitly.

In all, this is an interesting and valuable book that should be read by scholars and policy actors interested in the potential ways that environmental cooperation might promote peace rather than violence. Though the findings are offered somewhat tentatively, the volume is nonetheless sufficiently provocative to merit serious attention. *Environmental Peacemaking* successfully illuminates two important potential pathways to non-violent outcomes, which means that readers intent on conducting research in this field will surely want to use this book as a guide. �W

Rodger A. Payne *is an associate professor of political science at the University of Louisville and director of the $200,000 Grawemeyer Award for Ideas Improving World Order. His most recent articles have appeared in the* European Journal of International Relations, Journal of Peace Research, *and* International Studies Perspectives.

NOTES

[1] The editors and authors of *Environmental Peacemaking* use the term "Post-Westphalian" to describe a potential shift in politics away from interstate dynamics towards trans-societal relations or transnational civil society. The field of international relations generally credits the Treaty of Westphalia (1648) with establishing the states system.

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Responding to Environmental Conflicts: Implications for Theory and Practice

(NATO Science Series 2, Volume 78).
Eileen Petzold-Bradley, Alexander Carius, &
    Arpad Vincze (Eds.)
Dordrecht: Kluwer Academic Publishers,
    2001. 308 pp.

Reviewed by **Simon Dalby**

Responding to Environmental Conflicts is the latest entry in Kluwer's recent series reporting on the proceedings of NATO workshops on environment, conflict, and security. This volume draws its chapters from some of the papers of the Advanced Research Workshop on "Responding to Environmental Conflicts: Implications for Theory and Practice" held in Budapest in January 1999. The book is somewhat shorter than some of its predecessors (see Gleditsch, 1997; Lonergan, 1999; and Ascher & Mirovitskaya, 2000), in part because the volume has a more specific regional focus than the previous seminars.

The first chapter ("Theoretical Linkages and Policy Approaches to the Environment and Security Debate"), written by the editors (with an additional contribution by Andreas March), provides an overview of theoretical matters and policy approaches; it also summarizes the contributions to the volume. The chapter immediately contextualizes the workshop by asserting that "[c]omparative research has shown that environmental stress (environmental degradation and resource scarcity) could, under certain political, economic, and social conditions, contribute to or accelerate the outbreak of serious conflict mainly in the developing countries, the near East, and Central Asia" (pp. 1-2).

Within this context, the Budapest workshop examined case studies and discussed which policy options might be appropriate for promoting both early warnings of impending conflict as well as interventions to mitigate conflict-inducing situations. The book is organized into four sections: (a) an overview of environment and security challenges; (b) an assessment of environmental security; (c) case studies; and, finally, (d) the role of international and environmental institutions regarding potential conflict.

Environment, Security, and Environmental Security

Kurt Lietzmann's chapter ("Environment and Security on the International Agenda") briefly summarizes the debate on environment and security, suggesting that one important preliminary conclusion is that "the security risk potential of an environmental hazard does not lead to a security specific answer" (p. 24). By drawing on the insights of risk society thinking, this conclusion does suggest that security concerns add to the arguments for effective environmental policy—specifically, that environmental concerns have to play a much larger role in economic planning and policy (if not in security planning) on both national and international levels. In "Negotiations to Avert Transboundary Environmental Security Conflicts," Bertram Spector uses international examples to look at the possibilities of preemptive conflict-resolution in the case of transboundary water and resource disputes. Spector's analysis points to the need to change stakes and adapt new norms in the process: while it is difficult to identify problems in advance, there can be considerable political rewards for negotiating successful international agreements.

Nils Petter Gleditsch's chapter ("Resource and Environmental Conflict") suggests that thinking about resources and the causes of war is much older than much of the environmental security literature in the last fifteen years suggests. Gleditsch also revisits the methodological debate over the appropriate modes for analysis linkages between environment and conflict. He suggests that resources need to be understood in the larger context of international conflict propensities. In "Theoretical Aspects of Environmental Security," Hugh Dyer suggests that discussions about environmental security and related conceptual concerns must also analyze their own underlying values. Along with Gleditsch, Dyer also emphasizes that many discussions of environmental security are concerned with the consequences of activities that cause social difficulties but not warfare. He argues that the referent object of security in these debates is frequently matters of ecology, globality, and governance rather than of identity, territoriality, and sovereignty. Assuming that states will provide "environmental security," says Dyer, is not necessarily a good analytical starting point; neither is the assumption that environmental interests are obvious amidst competing values in a world of economic pressures and sovereign states. Yannis Kinnas ("Cultural Differentiation as a Source of Environmental Conflict") then extends such thinking by explicitly focusing on cultural differentiation as a source of conflict; he looks at both international rivalries and contrasts aboriginal views with modern utilitarian approaches to nature.

Gerhardus Schultink ("Comparative Environmental Policy and Risk Assessment") suggests that the disruptions inherent in economic development drive various global resource shortages. In particular, land shortages in developing countries are likely to have repercussions that require careful development work to anticipate difficulties. Using American experiences with floods and earthquakes, Nicholas Pinter, Nancy Philippi, and Russel Thomas ("Side-stepping Environmental Conflicts") then focus on natural hazards assessment, mitigation, and planning as a way

the rethinking of security in the post–Cold War world are entangled in complex ways with environmental concerns on the international policy agenda, entailing a rethinking of regional identities such as the Baltic.

Irena Rudneva and Eileen Petzold-Bradley ("Environment and Security Challenges in the Black Sea Region") go on to discuss the pressing necessity of dealing with the growing human impact on that water body, which cannot absorb current levels of pollution. Given such pollution impacts and the prospect of oil traffic from the Caspian region, Rudneva

> While green wars between states are unlikely, all sorts of environmentally induced insecurities are not.
> —Simon Dalby

of "side-stepping" environmental conflict. Pinter, Philippi, and Thomas point to the potential of engineering solutions to some hazards (in particular, to earthquake casualty prevention). But they also note the considerable danger when human activities open a "Pandora's Box" whereby damage from a disaster is both exacerbated and exported to other areas by human actions such as hydraulic engineering, inappropriate land use, and the siting of industrial wastes and facilities in hazard-prone places.

Looking to the global scale, Joseph Alcamo and Marcel Endejan ("The Security Diagram") link (a) environmental stress, (b) human susceptibility to such stress, and (c) the damaging consequences in terms of "crisis" in a conceptual framework they term "the security diagram." For Alcamo and Endejan, the security diagram can provide a method of providing advance warning of the likelihood of conflict. But given how briefly they describe the framework, it is not obvious why this scheme offers more predictive power than others in the literature.

Case Studies

The case-study section of the volume presents five studies. In "Environment and Security in Hungary," Arpad Vincze and Laszlo Halasz investigate the links between environment and security in Hungary. In Hungary's transition society, Vincze and Halasz assert, environmental security themes have yet to appear very explicitly on the policy agenda, although there is growing awareness of the importance of the military following environmental guidelines. In "Redefining Security around the Baltic," Stacy VanDeveer and Geoffrey Dabelko reveal that NATO expansion and

and Petzold-Bradley argue that the Black Sea is in urgent need of further cooperative efforts to reduce current and potential environmental damage. They also point out that, given the instabilities and political difficulties of the transition societies in the former Soviet bloc, such institutional cooperation is not likely to be easy.

In "Mechanisms of Environmental Security in Russia," Vladimir Kotov and Elena Nikitina remind readers that it was the leaders of the Soviet Union who emphasized the importance of international environmental security in the 1980s in the aftermath of the Chernobyl disaster. But Russia's economic and political situation since the collapse of the Soviet regime has made the implementation of new programs and guidelines for environmental protection difficult. Kotov and Nikitina write that, for Russia's "official" economy, short-term exigencies frequently determine the allocation of funds and priorities. The country's unofficial economy has no regulation and thus causes environmental damage. And while Russia is signatory to approximately 80 international environmental agreements, in many cases (such as the Long Range Transboundary Air Pollution Convention) the Russian government has not made serious efforts to comply with their stipulations. Kotov and Nikitina point out that economic recovery will probably also place Russia in violation of the agreements about greenhouse gas emissions.

Finally, Mikos Sukosd ("Democratization, Nationalism and Eco-Politics") focuses on the international-relations dimension of the Gabickovo-Nagymaros dam system on the Danube. Sukosd notes that NATO member Hungary's relations with non-

NATO member Slovakia are overlaid with the complexities of this international situation. Hungary's case emphasizes domestic politics, the manipulation of nationalism in ways that may not be environmentally friendly, and the importance of transparent monitoring and information availability in ensuring compliance with environmental agreements. Sukosd concludes that international institutions—specifically in this case, the International Court of Justice—matter in solving environmental disputes.

Institutions and Conflict Prevention

And this conclusion leads logically to the final section of the book, which deals with international environmental institutions and the prevention of conflict. In "Preventing Environmentally Induced Conflicts," Sebastian Oberthhr argues that, while international environmental policy is necessary, the establishment of a Global Environmental Organization (GEO) with much greater powers that the existing United Nations Environment Programme (UNEP) will not in itself solve problems that states have not thus far had the political will to tackle. Even with a GEO, writes Oberthhr, the difficulty of getting binding resolutions, effective enforcement, and workable coordination arrangements remains immense.

Margaret Brusasco-Mackenzie next discusses these matters in the European Union (EU) context in her chapter "Environment and Security." Among other initiatives, the European Parliament has passed a resolution linking environment, security, and foreign affairs. Considerable deliberations on these themes have occurred in other European institutions, although it is too soon to tell whether these will provide the basis for either a sustainable European society or a model for adoption elsewhere. In "The UNECE Environment Conventions," Branko Bosnjakovic complements this analysis with a chapter detailing the United Nations Economic Commission for Europe and its role in the settlement of international environmental disputes. Bosnjakovic suggests that the framework of the many agreements on these themes is gradually enmeshing both the EU states and the transition states in a complex regime of environmental management. Finally, Sabine Hoefnagel and Aiko Bode deal with UNEP's role in dispute prevention in their chapter "Achievements and Limitations of International Environmental Regimes and Institutions in Positive Dispute Prevention." As the authors note, UNEP's duties mainly consist of "monitoring, assessing,

reporting, developing action plans, initiating new legal instruments and giving assistance to build environmental competence in developing countries" (p. 304). This observation reinforces the impression that many cooperative environmental initiatives are already underway.

Conclusions

The overarching conclusion of *Responding to Environmental Conflicts* is that context matters immensely in discussing environmental security. Vandeveer and Dabelko's argument that environmental security needs to take regional matters seriously is implicitly supported by many of the other chapters, making the discussion far richer than abstract formulations of global generalities. Insofar as this book emphasizes the importance of thinking hard about the specific context of environmental security issues—one size rarely fits all in these matters—it is a valuable addition to the literature.

Responding to Environmental Conflicts does not deal seriously with questions of environmental conflict in the poorest of the developing countries. Nor does it present lessons from North America (with the exception of those to be drawn on hazards planning in the chapter by Pinter, Philippi, and Thomas). As such, the book's focus is much more European than the title suggests. It does clearly contrast the cases of Western Europe with those of the transition states in the former Soviet bloc. And it implicitly underscores the importance of thinking about more than just states as appropriate actors in the discussion and implementation of environmental security. (This is especially salient in Russia, where black markets and crime are important in the gasoline trade and the transportation of petroleum.) Environmental security policy must include both international action and the incorporation of unofficial economic activities that are too often dismissed as merely criminal.

Another strong aspect of the book is that many of its chapters present both conceptual pluralism and constructive practical suggestions. Most of the authors in *Responding to Environmental Conflicts* resist the temptation to reinvent the conceptual wheel. Instead—and especially so in the case of Hugh Dyer's intervention—the articles highlight the discursive context of these debates. While the prominence of environment in many state's political values remains highly doubtful for the near future, most of the discussions here understand environmental security as indivisible; the economic and ecological connections

that crisscross Europe after the Cold War make national strategies of environmental security impossible. Connections across frontiers are unavoidable, and policy must operate on this premise.

The overall impression from the case studies supports a wider contention in the environmental security literature: cooperation, not conflict, is usually the norm in resolving international environmental disputes. The authors of *Responding to Environmental Conflicts* agree that, while "green wars" between states are unlikely, all sorts of environmentally induced insecurities are not. Many of the chapters also recognize the limits of international institution–building as a solution to environmental insecurity, given the reluctance of societies and states to reform their unsustainable, carbon-fuelled business-as-usual practices. Hugh Dyer is on the right track here: while technical fixes and institution building are part of the solution, the question of fundamental political values will not simply disappear.

Simon Dalby is a professor of geography and political economy at Carleton University in Ottawa and author of Environmental Security *(University of Minnesota Press, 2002).*

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Environment and Security: Crisis Prevention through Co-operation
Berlin: German Federal Office, 2000. 147 pp.

Reviewed by **Alexander López**

Environment and Security explores the links between those two fields and how cooperation between them plays a core role for crisis prevention. The connections are explored in an empirical form through three relevant subject areas: common water resources, global climate change, and soil degradation. The publication is based on an international workshop held in June 2000 in Berlin and hosted by the German Federal Office; the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety; and the German Federal Ministry for Economic Co-operation and Development in co-operation with Ecologic, a nongovernmental organization studying international and European environmental policy.

At the conceptual level, *Environment and Security* argues that the environment is never the sole cause of conflict and, indeed, that the root causes of conflicts can to a large extent be traced to a set of structural and contextual factors. The environment can play a role in precipitating conflict, but in connection with other forces.

The book also reflects a general agreement at the workshop that environmental conflicts are more likely at the sub-national than the international level. Even though environmental change in one nation can pose a threat to the quality of life in another nation, this threat does not necesarily result in war or other conflict. Nevertheless, such environmental changes pose problems for negotiation, generating in many cases conflicts of interests and thus becoming a concern for international political security.

As for intrastate conflicts related to the environment, Gunter Bächler reports in his chapter "Environmental Degradation and Acute Conflicts as Problems of Developing Countries" that most of these conflicts are taking place in regions that are arid, semi-arid, or mountainous. One exception is in the Brazilian Amazon, where open environmental conflict has involved rubber tappers versus large landowners or small gold miners versus indigenous groups.

Subject Areas

Water resources. The Aral Sea basin and the Nile River basin were used during the workshop as

examples of water resources in which environment and conflict could intersect. The Aral Sea basin seems to lack confidence-building measures and political will among its surrounding states. Workshop participants suggested "win-win" projects (such as basin-wide institutions that are transparent, well-financed, and have full commitments by all stakeholders) as the main tool for building such confidence. The Aral Sea basin also has several institutions dealing with water-resources management, which has led to confusion, competition, and the fragmentation of tasks. The Nile Basin Initiative (NBI) was seen by workshop participants as the main mechanism in building confidence measures for the Nile River basin.

Climate change. The examples of small island states in the Pacific and the Bay of Bengal are used in *Environment and Security* to explain the role of climate change in generating insecurity. As Carlo Jaeger points out in his chapter "Environmental Security and Climate Change in Pacific Island Countries," "if current tendencies continue, twenty-two Pacific Island countries will lose a considerable part of their shoreline to the rising ocean" (p. 77). In addition, Jaeger adds that these countries will experience (a) scarcer and more salty drinking water, and (b) tropical cyclones of increased intensity and frequency. (In the Bay of Bengal, there is already growing evidence that the cyclones and storms are becoming much more severe.) Countries that are also disproportionately affected by climate change are generally already under social stress. The potential is therefore high in these societies for political instability and social unrest because of environmental stress.

Land degradation. Workshop participants identified forced migration as the main consequence of the connection between land degradation and security. Large-scale land degradation often acts as a pushing factor, forcing people to migrate to other regions where they then normally face conflicts with people already settled in those regions (called "group-identity" clashes). Some claim that, in many cases, group-identity conflicts arise from the incompatibility generated by different social structures and practices within the confines of the same physical space.

Wrap-up session. Environment and Security highlights several conclusions of the workshop, three of which deserve particular attention. Participants first recommended that the debate on environment and security should move from a theoretical level to a practical one where concrete policy action can occur.

Second, participants identified poverty alleviation as the most urgent task within the context of preventing environmental conflicts. In applying this task to the relationship between North and South, two central concepts must be put at work: global structural politics and effective crisis prevention.

Third, global environmental governance is key to bringing environmental and security considerations together. Participants, however, argued that if developed countries do not fulfill their national obligations and commitments to good governance, global environmental governance will be illusory.

The workshop confirmed the importance gained by environment and security issues both in policy and science circles. Moreover, it demonstrated how the public now recognizes that the concept of security has expanded—an expansion that is reflected in the wide literature that now deals with these issues as well as in the emergence of concepts such as economic security, ecological security, and human security. The traditional paradigm of national security is also being expanded to: (a) include analyses at several levels (subnational as well as national and international); (b) stress the participation of new actors (such as nongovernmental organizations) with the potential for great influence on the national and international environmental agenda; (c) recognize new types of threats that are non-military; and (d) promote the idea that the classical notion of political boundaries could be replaced by the idea of ecological unity.

But the workshop did not discuss in detail the differences in perceptions of the issue of environment and security between developed and developing countries. From the developing side, the linkage of these two concepts has been regarded with some skepticism for three reasons. First, there is the institutional problem of who provides for security in developing countries. In developed countries this has not been a problem: for instance, NATO has incorporated the environmental dimension in the strategic concept of the organization. However, in the South, military institutions have often been perceived as forces for insecurity instead of security.

Second, some scholars have also been skeptical about linking the environment to the security sphere because they think such a linkage contributes to a militarization of the environment instead of a "greening" of the military.

Finally, some Southern critics have also charged that the "environment and security" framework diverts attention from the North's responsibility for and

contribution to today's environmental problems. In fact, the language behind the concept of environmental security can be read to place most of the "blame" for environmental problems on the South. These critics fear that the environmental security framework could be used in order to justify interventions in developing countries.

The South and North need to have a more constructive dialogue on these issues. Such a dialogue should pay attention to the conditions necessary for peace as well as the best institutions for dealing with environment and (in)security issues. In addition, the dialogue should discuss the role of poverty and the increasing social gaps generated by the current pattern of global development. Social needs are very often the most important triggers of social conflicts, and we need to understand them if we are to understand the process of environmental change and its contributing role in generating insecurity. W

Alexander López is an associate professor at the Universidad Nacional de Costa Rica and a Core Group Member of the Environment, Development, and Sustainable Peace (EDSP) Initiative. He also directs a research project supported by the MacArthur Foundation on environmental conflict and cooperation in Central American international river basins.

Growing Global Migration and Its Implications for the United States

By the National Intelligence Council
Washington, DC: National Foreign
    Intelligence Board. 42 pp.

Reviewed by **Kimberly Hamilton**

Once only of special interest to a few dedicated social scientists and demographers, international migration is today a subject of universal concern. According to the March 2001 National Intelligence Council (NIC) report *Growing Global Migration and Its Implications for the United States*, migration now ranks among the key drivers of future global security. Even if history had stopped on September 10, 2001, the issues raised in this brief overview would be worthy of serious consideration. But in the wake of September

11 and as a follow-on study to the NIC's *Global Trends 2015*, this National Intelligence Estimate borders on prophecy—although for unexpected reasons.

Singling out the specific implications for the United States of such a tremendous global phenomenon such as migration is difficult. Migration is growing globally, but its impact is expressed differently around the world. *Growing Global Migration* neatly lays out these challenges: aging and shrinking labor forces in Japan and Europe that threaten global economic growth; the competing forces of brain-drain and remittances in developing countries; and the growing alien-smuggling trade taking hold nearly everywhere. (As with many policy discussions, however, the report does not cover the tremendous "South-South" movement of people.)

The report makes a compelling case that how other countries manage their own migration challenges will have an important impact on the United States. In particular, Cuba, China, Haiti, and Mexico warrant special attention with regards to migration for two reasons. First, the proximity of several of these countries along with vast wage differentials will continue to fuel emigration to the United States. Second, these countries' complicated and often delicate long-standing political and economic relations with the United States may be compromised by a migration-producing crisis.

As *Growing Global Migration* illustrates, these external forces affect the United States in a variety of ways. Mass exoduses or simple threats of mass exodus from these countries place the United States in a vulnerable position. Efforts among some fellow OECD countries to limit immigrant entries may also redirect migration channels. In addition, the ability of Japan and some European countries to come to terms with their aging population and the resultant deficit of youthful workers may have long-term effects on the prospects for U.S. economic growth. These are all cause for contemplation if not concern.

The report notes that immigration is likely to continue into the United States, where foreign-born residents comprise roughly 11 percent of the population. This continued influx may be traced in part to the factors feeding other countries' expulsive pressures—including population growth, conflict, and poverty. More importantly, however, the United States has knowingly set in motion a set of powerful internal forces that promise to foster U.S. immigration. These dynamics include: an immigration system based on family reunification, a vocal business sector that

depends on a global pool of talent for its success, and skillful lobbying by immigrant groups themselves. The United States faces the challenge of capitalizing on the benefits that immigrants offer while mitigating against: (a) the divisive energies that emerge from poorly integrated communities, (b) a public that misunderstands the migration phenomena, and (c) a government struggling to develop humane systems that would protect U.S. borders from illegal immigrants as well as account for those who arrive legally. *Growing Global Migration* does touch on the factors luring immigrants as well as the consequences of immigration, but it could have dealt with them in greater depth.

The report's prophetic quality begins with its analysis that the United States and other countries "will become less able to control migration flows across their borders" (p. 13). It further notes that "transnational terrorists…will seek to blend into and recruit among coethnic and other immigrant communities and exploit gaps in migration control efforts to ply their trades" (p. 32). Of all the volume's forecasts, this one has until now received the least attention. But if there is one simple lesson from the events of September 11 and their denouement, it is that migration forces—for good and for evil—are transnational.

And the magnitude of this transnational migration is both impressive and growing. More than 500 million entries and exits are estimated into and out of the United States every year (MPI, 2001). Every day, more than 250,000 people enter the United States from Canada, its largest trading partner (U.S. Department of Transportation, 2001). Roughly 800,000 immigrants arrive from Mexico, the second-largest U.S. trading partner (Gorman, 2001).

Oddly, this large-scale mass migration failed to put the United States at attention. Rather, the extensive Al Qaeda network accomplished exactly what the NIC report warned; through a small stream of committed participants, it took advantage of *simple* gaps in U.S. border-control efforts. But can the United States manage migration, a key component of its economic success, without vilifying migrants and generations of immigrant families? Will we be able to balance American unity with the very real need for stepped-up security measures?

The answers are not apparent even as pundits, blue ribbon commissions, and concerned citizens continue to weigh in. There are certainly "difficult choices ahead" for all countries (p. 42), and, as *Global Trends 2015* almost naïvely notes, "diplomacy will be more complicated" (NIC, 2000). For those who have long

resisted and continue to resist characterizing international migration as an issue of high security, there is no denying that it has played and will continue to play a critical role in shaping the world as we know it today.

Stopping international migration or burdening immigration systems is neither realistic nor desirable. Instead, we must understand migration and its divergent global impact as a tectonic plate that underpins socio-political geography. Seen in that light, the decision of the National Intelligence Council to embrace migration as a major driver shaping U.S. national interests over the next 15 years was prescient and not presumptuous.

Kimberly Hamilton is a senior policy analyst at the Migration Policy Institute in Washington, DC. She is also managing editor of the Migration Information Source *(www.migrationinformation.org).*

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Migration, Globalization and Human Security

David T. Graham and Nana K. Poku (Eds.)
London: Routledge, 2000. 222 pp.

Reviewed by **Steve Lonergan**

"Poverty is a major cause and effect of global environmental problems. It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international equality." (WCED, 1987)

This statement from the World Commission on Environment and Development is no less true today than when it was made 15 years ago. And its identification of poverty as a root cause (for global environmental problems) could easily be extended to all issues relating to human security—including population movement. It is not a new message to say that any discussion of population movement as well as of environmental degradation must be embedded in the context of such issues as population growth, inequitable land distribution, structural inequality, civil war, and extreme poverty. The message, however, still needs retelling.

The past fifty years have seen considerable research on migration—its causes, consequences, and "appropriate" response options. Although migration is a complex phenomenon, many of the theories of migrant behavior are quite simple: they argue that migration results from a combination of "push" and "pull" factors that can be economic, social, or political. More recent, "structural" theories maintain that the explanation for population movement lies in those deeper, underlying forces that structure the unequal distribution of opportunities between regions.

Regardless of which theory one ascribes to, two things are clear. First, the magnitude of migratory movements is enormous. The International Organization of Migration estimates that, in the year 2000, the world had over 100 million migrants, including at least 20 million refugees and asylum-seekers (UN, 2001). Statistical data on migrants, refugees, and asylum-seekers is admittedly very problematic. But there is little doubt that migration is one of the central issues facing virtually all countries in the world.

Second, changing economic, social, political, and institutional structures affect migration as they affect everything else; and we need a better understanding of the consequences of their changes. Two of these "new" structures—(a) globalization of capital (and, increasingly, labor); and (b) the changing nature of security—manifest themselves as additional stresses on large numbers of disenfranchised people. The existence of the first process is obvious; the second, less so. Increasingly, it is clear that nation-states are no longer able to provide security for their people. Whether we term these issues "comprehensive," "common," or "human" security, we clearly face numerous "threats" that underdevelopment and poverty exacerbate (especially in the South).

In recent years, increased efforts have focused on reaching a better understanding of the links between and among human activities and these various components of security. *Migration, Globalisation and Human Security*, edited by David Graham and Nana Poku, attempts to explicate particular aspects of this issue—most notably, the relationship among migration, globalization, and human security. Accordingly, the volume offers a welcome addition to the literature.

Migration, Globalisation and Human Security begins with three theoretical chapters. In these, Poku, Neil Renwick, and John Glenn discuss the redefinition of the content and purpose of security studies from a decidedly realist perspective. They make a strong case for placing the dispossessed (my term, not theirs) at the center of security studies. As one who is deeply involved with the study of global environmental change and human security, I entirely agree. Again, the message is not new, but it bears repeating.

The following two chapters, by Richard Davies and Peter Marden, focus on the broad issues of diasporas (Davies) and territoriality (Marden)—two closely-linked issues. As Marden notes, there is now a strong tension between: (a) the pressures for immigration; and (b) the ability of states to deal with immigration's resulting pressures (to the satisfaction of their citizenry). Not surprisingly, immigration presents one of the biggest political issues in much of the Western world.

The next six chapters offer a more empirical perspective. In "Migration and security from a North-South perspective," Elisabeth Abiri presents a comparative study of Sweden and Malawi. The comparison seems bizarre at first, but it is productive. Abiri focuses on refugee movements—notably Mozambican refugees in Malawi and Bosnian refugees in Sweden—and draws interesting parallels between the two concerning cross-border movements and refugee issues. In "A durable international migration

and security nexus: the problem of the Islamic periphery in transatlantic ties," Mark Miller then addresses what he terms the Islamic "periphery" and transatlantic migration. Using the examples of Algeria and Kurdish-populated areas, he demonstrates how migration and security have become closely linked. In his view, international migration links core and periphery in a way that affects the security of core regions (such as Europe or, quite possibly, the United States). While Miller is careful not to label international migration as a destabilizing force in all cases, he draws attention to past examples and the need for trade liberalization policies to reduce the likelihood of conflict. His chapter works within the bounds of traditional security discourse, but the examples and explanations are still very relevant.

The next four chapters of *Migration, Globalization and Human Security* are a bit disjointed in terms of fitting the theme of the book; individually, however, they offer interesting reading. In "Meta-societies, remittance economies and Internet addresses," Richard Bedford discusses the linkages between Pacific Island residents and those who have migrated from the region, through remittances and "transnational corporations of kin"—a euphemism for family linkages that facilitate education, employment, and welfare support for indigenous cultures. Next, Michael Parnwell (in a previously-published chapter entitled "Tourism, globalisation and critical security in Burma and Thailand") draws on his considerable experience in Southeast Asia to explore linkages between tourism and human security. He concludes that the impact of tourism is dependent on institutional structures—in particular, on who has the regulatory power. Parnwell notes that marginalized and disenfranchised peoples tend to suffer the most from tourism development, since they are vulnerable to exploitation from those who control that development. Advocacy groups and NGOs help to counter this force, but the negative impacts of tourism persist.

Igor Ushkalov ("Emigration and immigration: the case of Russia") and Irina Malakha ("The brain drain in Russia") then write on population movement and the "brain drain" after transition in Russia. Both authors conclude that, despite the growth in international scientific cooperation in Russia, the emigration of skilled labour from the country poses problems for human security and future development. While all of these chapters address certain facets of the globalization/human security/migration nexus, none actually synthesizes a complete vision. Graham's final

chapter of the book provides a useful overview of migration and human security in a globalizing world. It should have served as the book's lead chapter rather than its conclusion.

Despite addressing some very important issues and relationships, *Migration, Globalisation and Human Security* has some weaknesses. As with most edited volumes, the quality of the writing varies across chapters, the sequence of chapters lacks logic, and the topics (although covering a broad array of issues) are somewhat disparate. The theoretical chapters do make a strong case for linking migration with poverty and viewing these issues in the broader context of human security. While these chapters are useful, however, an ample amount of theoretical and conceptual thinking on this subject already exists.

But research in the field has as yet failed to provide a series of case studies to ground the theory and provide useful insights for policy development. At least some of the empirical chapters respond to this need, and they are undoubtedly the strength of this volume. It is a small step, to be sure, but the cases on Malawi, Sweden, and the Islamic periphery reveal the importance of this type of research and analysis.

Who should read this book? The empirical chapters add knowledge and provide valuable insights into these issues for migration specialists and those already working in the human-security framework. Theoreticians will not find anything new in the volume, but should take a quick look anyway. Researchers, policymakers, and nongovernmental officials who still fail to understand the need to focus on human security and to place the poor and the dispossessed at the center of our security mindsets—these people should definitely read all of *Migration, Globalisation and Human Security*. Along with about 50 other books that I could recommend. W

Steve Lonergan is a professor in the Department of Geography, University of Victoria, Canada. He is also past Director of the Global Environmental Change and Human Security project for the International Human Dimensions Program on Global Environmental Change.

New Publications

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Footprints and Milestones: Population and Environmental Change

New York: United Nations Population Fund (UNFPA), 2001. 76 pp.

Reviewed by **Roger-Mark De Souza**

In UNFPA's *Footprints and Milestones: Population and Environmental Change*, the authors provide a balanced treatment of the threats and opportunities posed by the interaction of population dynamics and environmental change. While the publication outlines the factors that influence population-environment interaction, the authors also argue that this interaction has specific policy implications—systematic and cost-effective solutions that could resolve some of the key problems countries face. *Footprints and Milestones* is a comprehensive, easily understandable, and attractive publication that will appeal to a wide audience.

Footprints and Milestones begins by examining the role of different demographic variables—population size, distribution, and movement—in environmental change. The analysis goes well beyond traditional Malthusian descriptions of the interplay between population and environment. As the authors note, "[g]eneralizations about the negative effects of population growth on the environment are often misleading. Population scientists long ago abandoned such an approach, yet policy in some cases still proceeds as if it were a reality" (p. 2). This point is gaining momentum in social- and natural-science academic circles, and mainstreaming it through publications such as *Footprints and Milestones* will help policymakers and their advisors better comprehend how scientific analysis of population-environment dynamics will help meet the objectives of sustainable development.

Crucial to this mission is the question of reciprocity—how humans affect and are affected by the environment. For many years, researchers focused on the impact of humans on the environment while failing to address the impact of environmental change on human welfare. In the past fifty years or so, however, we have shifted from a focus on limited natural resources and renewable resources to more nuanced concerns about the effects of human-dominated ecosystems on the environment and on humans.

The publication makes this point clear in its examination of environmental health problems—a discussion that offers two benefits. First, when policymakers consider environmental health issues (by examining communicable diseases, chemical exposure, the global disease burden, and water and sanitation issues, for example), they are able to better determine the conditions that affect global health and life expectancy. Second, examining environmental health allows policymakers and planners to appreciate the direct consequences of environmental conditions for reproductive health (its effects on men and women as well as on service delivery and quality). One example cited in *Footprints and Milestones* is the case of endocrine disrupters. These synthetic chemicals are believed to cause human reproductive disorders and infertility once absorbed by human beings after being released into the air, water, soil, and our food.

In addition to reciprocity, *Footprints and Milestones* addresses the thorny question of causality. The authors recognize the role of various factors that impact the population-environment linkage—including technological developments, institutional and policy contexts, and cultural factors. In recognizing the role of culture, for example, they note that "[i]ndigenous knowledge and practices reflect adaptation to environmental realities that scientists and technocrats may not fully appreciate" (p. 9).

Similarly, the publication also deals with important issues such as gender that are often missed in these discussions but which have significant considerations. The authors write that "[t]he direct and critical relationship between women and natural resources [is due to] … gender, and the socially created roles and responsibilities…" (p. 37).[1] One such example of this relationship is found in the case of rural women. Environmental damage has increased the distance that these women must travel for fuel or water. These heavy loads over longer distances contribute to low birth-weights and proportions of body fat among women. Below certain levels, low body-weight

contributes to the cessation of menses and reduced fertility. Examining the roles and responsibilities of men and women in natural-resource management offers valuable insight into equitable solutions to environmental problems—solutions that also ensure economic viability. Such approaches allow us to address the economic, environmental, and equity challenges of sustainable development.

Footprints and Milestones illustrates these challenges best through detailing a telling array of dichotomies: global consumption inequities; the research-to-policy gap; inadequate resources for needs such as family planning; shortfalls in technology-transfer as well as developing-world capacity and resourcefulness; and mounting population pressures where needs are greatest.

To a certain degree, these dichotomies symbolize a basic philosophical division in the population-environment field between pessimists and optimists.[2] The pessimists, a school of thought represented by scholars such as Malthus, Paul Ehrlich, and Donnella Meadows, focus on potential deterioration and collapse due to global trends that include population growth, global warming, declining ocean health, biodiversity reductions, and land degradation. On the other hand, optimists such as Julian Simon and Herman Kahn focus on the creative capacity of people, stressing that improvements can reduce pollution or improve economic efficiency. Ultimately, the authors pose a key question that lies at the heart of these issues: while human ingenuity has brought us this far, how can we apply it to the future?
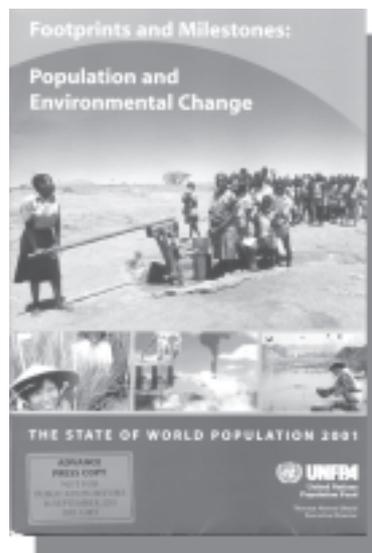
One answer is through the "milestones"— accomplishments in the field—that the UNFPA authors present. Besides examining a range of demographic variables, reciprocity, and causality, the authors also make the discussion concrete by including a chapter on programmatic and policy options. Here, they assert that there is an international consensus that "[d]evelopment requires improvements in the lives of individuals, usually by their own hand, the status of women powerfully determines the state of development, and women require good reproductive health care for their status to improve" (p. 49).

This chapter includes (a) regional initiatives that link population and the environment, (b) an examination of needed resources and technical assistance, (c) environmental payback from population-related investments, and (d) recommendations for action. In particular, this section stresses the opportunity to integrate the International Conference on Population and Development (ICPD) agenda of better reproductive health and gender equality into sustainable development.[3] As the authors note, "providing full access to reproductive health services, which are relatively inexpensive, is far less costly in the long run than the environmental consequences of the faster population growth that will result if reproductive health needs are not met" (p. 8).

Through examining these milestones, the authors give readers a sense of how population and environment linkages became issues of policy relevance. They convey the important truths that: (a) population-environment linkages encompass not just conflicts but other relationships; (b) there is an unprecedented human impact on the environment; and (c) the transboundary and indeed global nature of the issues makes the linkages relevant for all countries. The authors' extensive measurements of trends and indicators illustrate the scale and complexity of the linkages. The appendix on how these linkages have been examined in UN conferences is also useful in this regard, as it reflects the global attention these issues have received.

Audiences interested in population-environment interactions traditionally have technical questions about the linkage. For example, which specific dimensions of the population dynamic have an impact on particular resources? When does it make most sense—from a policy and program perspective—to focus on the population side as the best intervention to alleviate the problem at hand? What must be done in the short-term to effect long-term change? The authors weave some answers to these questions throughout the publication and then address the questions directly in the final chapter in the section on environmental paybacks from population-related investments (p. 53). For example, while the publication notes that policies that tend to lower fertility are also

likely to substantially reduce climate-change costs, this conclusion does not mean that slowing population growth is the most effective or most equitable means of mitigating climate change. Slower population growth, however, would make the climate problem easier to solve, and capturing long-term benefits requires investments in population policies in the immediate future.

Another set of questions the publication addresses relates to problems of definition, scope, and comparability as well as to policy application. How is population defined? How will policymakers understand that population does not just mean human well-being (the social piece of sustainable development), but should include an analysis of population growth, distribution, and composition? How do we compare data or issues that are domestic, regional, or international in nature or that cut across ecoregions? How do we deal with the uncertainty of demographic projections, data collection, and comparability when dealing with issues of scope, scale, and data availability? How can natural and social scientists work more closely together? How can research on these issues get into the hands of policymakers? How do we define and measure results—especially at the policy level? UNFPA has written a publication that serves as a starting point for further reflection on these questions.

In conclusion, *Footprints and Milestones* provides an excellent review of the key themes of population-environment linkages. While not answering all the technical questions that policy audiences will have, it explains why the linkages are important and why

population interventions are a good way to address many development challenges that countries face.

Roger–Mark De Souza is the technical director of the Population, Health, and Environment Program at the Population Reference Bureau (PRB). He directs PRB's overall activities on population, health, and environment linkages and designs and implements policy research, policy communication, capacity building, technical support, and outreach activities.

NOTES

[1] See also Sass (2002).

[2] For a further discussion of this debate, see Livernash & Rodenbury (1998).

[3] See Ashford (2001).

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AAAS Atlas of Population & Environment

By Paul Harrison and Fred Pearce
Berkeley: University of California Press,
  2000. 204 pp.

Reviewed by Jennifer Wisnewski Kaczor

A challenge for anyone presenting population and environment research to a broad audience is to make material rich enough for the researcher, yet understandable to policymakers, students, and the general public. The *AAAS Atlas of Population and Environment* not only provides a comprehensive overview of population and environment issues, it also offers illuminating graphics and maps that will appeal to policy analysts, activists, and professors.

The *Atlas* resulted from a project that sought (a) to use geographic information systems (GIS) to create an atlas of *global* population and environment trends, and (b) to bring this knowledge to a larger audience. Lars Bromley at AAAS used GIS to create a series of complementary maps that hold as much descriptive power as the text itself. The book features nearly all global-population and natural-resource GIS datasets available at the time of publication, making it an invaluable research resource.

The book is divided into three sections: (1) an overview that summarizes theoretical approaches, examples of population-environment linkages, and policy responses; (2) an atlas section that provides snapshots of various relationships between population and the environment; and (3) a case-study section that looks at local population-environment trends. Harrison and Pearce apply a *systems approach* to their study of population and environment linkages. This systems approach differs from previous population-environment models by incorporating as many factors as possible. In addition, the approach builds feedback loops into its model in an acknowledgment that human and environmental dynamics impact each other.

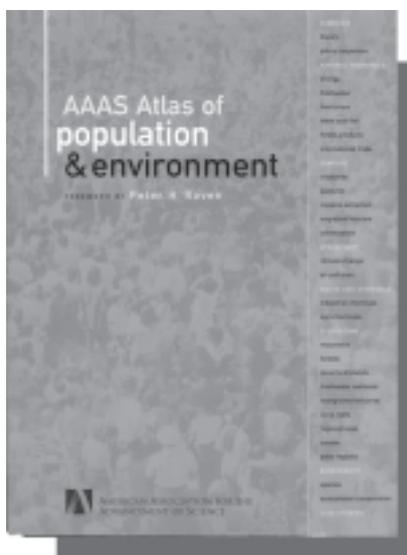The overview offers a literature review on this approach that newcomers to the subject will find useful; it also briefly explains alternative theoretical approaches. This framework is followed by a review of trends in global population, consumption, and natural-resource degradation, which provides a good introduction to population-environment linkages (especially for those unfamiliar with demography). By including consumption in their discussion from the beginning, Harrison and Pearce remind readers that not just developing-country policies but also consumer choices in developed countries impact natural-resource trends globally. The overview concludes by briefly discussing policy responses to these dynamics in the following areas: population, consumption, technology, population-environment, and institutions.

The atlas section uses maps, charts, and text to concisely detail global population-environment linkages for natural resources, land use, the atmosphere, waste and chemicals, ecosystems, and biodiversity. Within these categories, the authors cover many of the usual relationships—population and freshwater, forest products, arable land, and climate change. They also treat original topics such as the polar regions, mineral extraction, agricultural and industrial waste products, tourism, and international trade. The *Atlas* thus demonstrates the true breadth of relationships between humans and our environment.

The book then moves from the global to the local by presenting case studies from the World Wildlife Fund and The Nature Conservancy. These organizations used GIS to analyze the impact of human population on the environment in the Northern Andes ecoregion, Canaima National Park, Venezuela, the Eastern Himalayas, Madagascar, and the Sonoran Desert. The case studies provide students and newcomers to the field excellent examples of how to use GIS to look at these relationships. The discussions here have several drawbacks: they are too short, descriptive in nature, and lack policy options based on the findings. Despite these shortcomings, however, the cases allow readers to step back from the global level and see how population-environment interactions work locally in both developing and developed countries.

Finally, one of the most striking and useful features of the *Atlas* is its Web site. With support from the

Summit Foundation, the AAAS site provides a full-text, downloadable PDF version of the book as well as an HTML version with links to all of the data sources. The site is invaluable to researchers, analysts, and students looking for spatial data to support research on how human population impacts the environment. Much of this data is free and downloadable, or free upon request. In the near future, AAAS plans to expand the site to include a Web-based map server to create and manipulate maps over the Internet, making data accessible to those without GIS software. W

Jennifer Wisnewski Kaczor is a project associate with the Environmental Change and Security Project.

The Environmental Implications of Population Dynamics

By Lori Hunter
Santa Monica, CA: RAND, 2000. 98 pp.

Reviewed by **Jennifer Wisnewski Kaczor**

Policy analysts studying interdisciplinary topics (such as population-environment issues) must synthesize research from various sources and fields into a policy-friendly and -relevant format. RAND's Population Matters project has undertaken this challenging task for policymakers on population issues. *The Environmental Implications of Population Dynamics* is Population Matters' first look at macro-level population and environment trends—and the implications these trends pose for policy at the local, national, and global levels.

The report is straightforward and well-organized. It first describes the conceptual framework for analyzing how human demographics change the environment, and then explains the individual environmental impacts of (a) population size and growth, (b) population distribution, and (c) population composition. Each of these three chapters is accompanied by useful charts and graphs illuminating the text's data. Later, Hunter looks at mediating factors (or intervening variables) for the population–environment connection—factors such as science and

technology, institutions and policy, and culture. Using case studies, Hunter provides readers with examples of how these variables work at different levels (global, national, and local) to affect the interaction between people and their environment.

Several case studies in *The Environmental Implications of Population Dynamics* demonstrate how policy can be a mediating factor that causes environment to affect demographics. For instance, the Aral Sea Basin is a dramatic example of the adverse environmental effects of national-level water-management and irrigation policies. The Aral Sea has shrunk 40 percent since 1960—primarily, research has shown, because of irrigation policies implemented by the Soviet Union. The policies have altered the Aral Sea coastline, changed the local precipitation cycle, and drastically reduced the local fish population—with 20 of 24 native species disappearing altogether. For the people living on the Aral Sea coast—mostly long-time fishers and their dependents—these changes in environment have meant increasing poverty rates, increasing infant-mortality rates, and curtailment of livelihoods.

Hunter then provides two longer case studies summarizing research on the relationships between (a) demographic change and climate change, and (b) demographic change and land-use. She notes, for instance, that human-induced global climate change may very well have negative impacts as temperatures and sea-levels rise, creating the potential for land-loss in already very crowded coastal areas. Hunter also cites research predicting that global climate change could cause a five-percent loss in world cereal output, and that human health could be adversely affected as climate-induced geographic changes shift vector-borne diseases (such as malaria) into areas where people have had little exposure.

In the concluding chapter, Hunter makes four recommendations. First, environmental policies should stress both demographic concerns and mediating factors. Second, since ecosystems do not neatly fall within national boundaries, international cooperation on environmental issues is absolutely necessary to achieve sustainable solutions to development and conservation problems.

Third, the role of international markets in environmental degradation must be recognized. For example, cash crops farmed for export to international markets (such as Madagascar) have played an important factor in historical rates of deforestation. Finally, relevant policies should be implemented at local, national, and international levels. Because local and

national factors such as culture and consumption act as intervening variables, national- or local-level policies may be equally or even more important than policies implemented at the international level. In addition to these recommendations, Hunter provides a list of research needs for the population-environment field.

The Environmental Implications of Population Dynamics is an exemplary sample of work targeted to a policy audience. Its recommendations are clear, concise, and easy to find within the text. Hunter's use of case studies and examples coupled with research and data provides analysts and policymakers all the tools they need for informed decisions. In addition, Hunter includes a useful list of references for those wanting to read more about population and environment linkages. The report is targeted specifically toward those doing policy work, but it would also be a useful tool for students wanting an introduction to the topic from a policy perspective. W

Jennifer Wisnewski Kaczor is a project associate with the Environmental Change and Security Project.

The Health of Nations: Infectious Disease, Environmental Change, and Their Effects on National Security and Development

By Andrew T. Price-Smith
Cambridge: The MIT Press, 2002. 220 pp.

Reviewed by **Donald L. Noah**

The last decade has seen a burgeoning number of references on emerging and reemerging infectious diseases, widespread environmental degradation, and the ongoing struggle between man and microbe. Most recently, authoritative observations have associated the issues of health and national security (see Diamond, 1999; Garrett, 1995; Garrett, 2001; and National Intelligence Council, 2000). However, no one has offered an empirical method of measuring those associations—until now. Not only does Andrew Price-Smith assert in *The Health of Nations* that unchecked diseases interfere with global

democratization and add to economic and political destabilization, he seeks to identify and measure what others merely state as fact: the causal role that disease plays in determining state capacity.

After his introduction, Price-Smith begins *The Health of Nations* by walking us through the definition of his variables and the structure of his methodology. He views emerging and reemerging infectious diseases (ERIDs) as an independent variable, with survival as their only biological goal. Given the difficulty of quantifying ERIDs magnitude at any point in time, Price-Smith uses infant mortality and life expectancy as primary surrogates for measuring them. He measures state power in terms of empirical indicators (e.g., GNP, spending, secondary-school enrollment, and external investments) and attempts to determine that power's relationship with infectious disease incidence and prevalence.

Next, Price-Smith demonstrates a statistically-significant negative association between ERIDs and state development. More specifically, he identifies this relationship as an asymmetric feedback loop (in that increases in infectious disease) have a significantly negative impact on state capacity while increases in state capacity do not, in the long-term, decrease the occurrence of infectious disease. With examples from each region of the world, Price-Smith convincingly illustrates that ERIDs have recently resulted in inordinate paranoia, xenophobia, and impaired decision-making at the state level. For example, a 1994 outbreak of plague in India resulted in a mass exodus of 300,000 people from the city of Surat. The questionable warrant of this reaction was matched in the reactions of the surrounding countries of Pakistan, Bangladesh, Nepal, and China, which immediately closed their borders with India to trade, travel, and (in some cases) even mail. Other significant diseases in these case studies include plague, new variant Creutzfeld-Jakob disease, bovine spongiform encephalopathy, Ebola hemorrhagic fever, tuberculosis, and HIV/AIDS. The balanced nature of this effort is highlighted by Price-Smith's habit of including the opinions of others in his notes section at the end of the book.

Price-Smith then undertakes a thoroughly enjoyable review of the modernization and dependency theories of state development, followed by an introduction to the biological parameter of international development the author asserts has been long overlooked. Price-Smith then cogently analyzes population health and its effects on the

microeconomic, macroeconomic, and sectoral aspects of state development.

Next, *The Health of Nations* takes up where the National Intelligence Council left off in early 2000 with its groundbreaking treatise on emerging infectious diseases and U.S. national security (NIC, 2000). Central to this section is the argument that traditional notions of security, primarily expressed in military terms, fail to address disease threats to human health, which are often more deleterious to state capacity—especially in the long term. Price-Smith links military threats to health with the concept of *differential immunity*, whereby militaries that typically enjoy lower endemic disease incidence— such as that of the United States—may fall prey to the diseases carried by other militaries as they increasingly participate in international peacekeeping efforts.

Moreover, Price-Smith argues, disease may act as the unrecognized catalyst that contributes to state failure by exacerbating existing environmental and societal stressors— especially in the developing states where greater external interventions likely will be required. This section of the book reminds us that threats to national security are not zero-sum, unlike our traditional "capacity" and "willingness to respond" measures. While threats to a nation's security may come from a seemingly endless and independent number of sources (e.g., energy shortages, food and/or water scarcities, military encroachment, political isolation, etc.), no nation has the capacity to respond to many successive threats without the possibility of exhaustion.

Finally, Price-Smith discusses the causal relationships between environmental change (e.g., climate, land use, ozone, microbial resistance, biodiversity, and migration and trade) and adverse health trends. He concludes with the somewhat obvious prediction that continued environmental degradation will accelerate the emergence of pathogens into the human ecology. The recent emergence of Ebola hemorrhagic fever is an example where the incremental advancement of people into the forested environment of central Africa, already teeming with infected animal reservoirs, has resulted in completion of the classic epidemiologic triad.

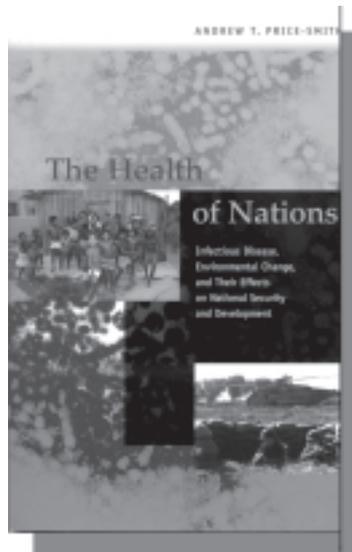There are just a few shortcomings to the book.

Despite Price-Smith's overall innovative treatise, portions of *The Wealth of Nations* read as yet another review of the contributors of disease (re)emergence. Moreover, in his discussions of increased disease prevalence/incidence, Price-Smith fails to offer a potential differentiation between the true emergence of new diseases versus an artificial increase due to an increased ability to *recognize* existing diseases.

The author also incorrectly includes Junin and Machupo viruses as subtypes of the Ebola virus. In addition, biologists may also object to his usage of the term "viral traffic" to include other microbes such as bacteria, fungi, and protozoa. Finally, the linchpin of his conclusions regarding the causal relationship between population health and state capacity rests with the validity of his surrogate variables. (These variables are: (a) infant mortality and life expectancy for population health; and (b) fiscal resources, human capital, reach and responsiveness, resilience, legitimacy, autonomy, coherence, and instrumental rationality for state capacity.) While Price-Smith's passionately presented evidence certainly adds a modicum of plausibility to the relationship, the degree to which those two variables adequately reflect state capacity remains unproved.

Despite these few and potential failings, I highly recommend this book to political, social, and biological scientists wishing to expand their understanding of diseases and society. Among the many strong points of the book are its systematic pattern of stating a hypothesis, using data and analysis to support the hypothesis, summarizing known critics (if any) of his methodology, and systematically refuting them with clear examples. My copy, dog-eared and thoroughly highlighted, is resting on my bookcase between Zinsser's *Rats, Lice, and History* (1932) and Alibek's *Biohazard* (1999). You should reserve a spot for your copy as well. W

Lt. Colonel Donald L. Noah currently serves as a biological warfare defense advisor to the Office of the U.S. Secretary of Defense. His past assignments include the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), the Centers for Disease Control and Prevention, the U.S. Air

Force School of Aerospace Medicine, and the intelligence community.

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Human Health & Global Climate Change: A Review of Potential Impacts in the United States

By John M. Balbus and Mark L. Wilson
Washington, DC: Pew Center on Global Climate Change, 2000. 43 pp

Reviewed by Jonathan A. Patz

Human Health & Global Climate Change: A Review of Potential Impacts in the United States provides a comprehensive and realistic review of the health implications stemming from climate variability and change affecting the United States. The report also dovetails well with the recent health-sector report of the U.S. National Assessment on the Consequences of Climate Variability and Change (Bernard et al., 2001; Patz et al., 2001). Together, these reports provide an excellent overview for policymakers addressing climate change.

Climate change is expected to adversely affect health in the United States in a number of ways. (See Box 1.) Increased frequency or intensity of extreme heat waves, floods, and droughts will provide exposure pathways for these adverse health effects. Warmer air temperatures could also influence local and regional air pollutants and aeroallergens. Less direct health impacts may result from climate-related alteration of ecosystems or water and food supplies, which in turn could affect nutrition and infectious disease incidence. Sea-level rise (due to thermoexpansion of salt water) could also potentially lead to coastal population displacement and economic disruption.

Balbus and Wilson are objective in their assessment of these potential health hazards, stating that "the complexity of the pathways by which climate affects health represents a major obstacle to predicting how, when, where, and to what extent global climate change may influence human well-being" (page iii). Both *Human Health and Global Climate Change* and the U.S. National Assessment report also acknowledge that climate effects will occur in the context of concomitant environmental and socioeconomic stressors (such as poverty or inadequate public-health infrastructure). The vulnerability of the U.S. population to these health hazards is determined not only by the magnitude of an adverse exposure (in this case, harsh climate) but also by our national, state, and local capacity to adapt.

The United States is also connected to the rest of the world, and international impacts from the global exposure of climate change (from food imports, immigration, or international travel) will affect it. According to the United Nations Intergovernmental Panel on Climate Change (IPCC) (McMichael et al., 2001), areas or populations most vulnerable to climate change health impacts include:

- Locations within or bordering regions with high endemicity of climate-sensitive diseases (e.g., malaria);
- Areas with an observed association between epidemic disease related to climate extremes (e.g., El Niño linked epidemics);
- Areas at risk from cross-sectoral climate impacts relevant to health (e.g., stress on food and water supplies, risk of coastal flooding);
- Areas at risk from concurrent environmental or socioeconomic stresses and with little capacity to adapt (e.g., local stresses from land-use practices or impoverished or undeveloped health infrastructure).

Balbus and Wilson present counterbalancing and interconnecting realities through informative and

Box 1: Examples of Climate Change's Potentially Adverse Health Effects in the United States

- *Mortality due to heat waves* primarily is a result of cardiovascular, cerebrosvascular, and respiratory disease (Kilbourne, 1997). The 1995 heat wave in Chicago caused 514 heat-related deaths (12 per 100,000 population) (Whitman et al., 1997).
- There is a strong positive relationship with temperature above 90° F and *formation of ozone* (photochemical smog). Ozone is a potent lung irritant and and recently has been shown to contribute to the development of asthma in children (McConnell et al., 2002).
- *Heavy rainfall and runoff* also influences the transport of other microbial agents from agricultural fields or human septic systems. Rainfall can alter the transport and dissemination of these microbial pathogens (such as cryptosporidiosis and giardia) and temperature may affect their survival and/or growth (Curriero et al., 2001; Rose et al., 2001).
- Regarding *vector-borne diseases*, Reisen et al. (1993) showed that a 3-5°C increase in mean monthly ambient temperature in different parts of California effectively doubled the length of the potential transmission season of Saint Louis Encephalitis (SLE), thereby placing at risk the migratory non–immune elderly that arrive from northern latitudes in October to spend the winter in the southwestern deserts.

refreshing tables and boxes on such subjects as "What Makes a Human Disease Climate Sensitive?" and "International Health Impacts." An extremely useful summary table in the book should serve as an excellent quick reference that orients one to disease outcomes, vulnerable populations, other non-climatic factors, and preventive or adaptive measures.

In a chapter on "Strengths and Limitations of the Current State of Knowledge," the authors address general data needs for the field, such as the lack of baseline disease data and inadequate resolution of generalized circulation models (GCMs) of climate. Such improved data would enable climate/health assessments that provide a geographic model of disease occurrence that would aid public-health interventions. The authors fail to mention, however, that while researchers have documented the distinct seasonality of many diseases, inappropriate statistical methods or climate downscaling are quite often applied to this seasonality. Climate and disease interactions are often nonlinear (NRC, 2001); by applying proper statistical tools, our understanding of these linkages will be better understood.

In light of both the possible irreversibility of global warming and the broad array of climate-change health impacts reviewed in this report, we need to better understand how climatological change links with ecological change to determine disease. Such an understanding will help in constructing predictive models to guide effective disease prevention. Policymakers and researchers must also urgently address the poverty and local environmental hazards to which health crises are largely attributable. Ignoring long-term trends in climate and natural resource consumption may compound existing environmental health problems. W

Jonathan A. Patz is an assistant professor at Johns Hopkins University's Bloomberg School of Public Health. He also is director of the Bloomberg School's Program on Health Effects of Global Environmental Change.

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Germs: Biological Weapons and America's Secret War
By Judith Miller, Stephen Engelberg, and William Broad
New York: Simon & Schuster, 2001. 382 pp.

Reviewed by **Robert Wyman**

Germs is an essential read for those interested in looking at the biological warfare threat, which for the past decade has become a rapidly growing U.S. national-security concern. While the book includes a history of biological warfare (BW), it focuses on how the United States has attempted to address the shortcomings in its preparation for a biological weapons attack.

History

The authors of *Germs* begin by exploring the first germ attack by a non-state actor (the Rajneeesh attack of 1994) and the efforts by federal authorities to downplay the event, fearing publicity could result in similar copycat crimes. An Oregon cult, the Rajneeshees attempted to influence a 1994 county election by spraying salmonella on local salad bars. Their objective was to make people too sick to go to the polls so that Rajneeshee candidates would win the elections and gain the cult a measure of legal protection. The Rajneeshee attack, which remained a mystery for a year, taught authorities the difficulty of distinguishing between an intentional biological attack and a natural outbreak. (Not until after a member of the cult held a press conference to confess and then a subsequent investigation did the full scope of the biological program of the cult became clear.) The Rajneesh case also demonstrated some of the difficulties that terrorists face in effectively using biological agents as a weapon. Even with a large amount of money, the cult still had trouble mastering the nuances of biological weapons design.

Germs then examines the 1990-91 Persian Gulf War (and the U.S. military's anthrax vaccination program during that conflict) to highlight some of America's problems in protecting military personnel and overseas assets against a biological weapons attack. During the war, U.S. military commanders were worried Saddam Hussein might use his biological arsenal against coalition troops. The Bush administration issued an ambiguous threat as to what an American response might be to an Iraqi biological attack. However, *Germs* reports that it was widely believed that President George Bush, Sr. had privately made it clear that a biological attack would result in a retaliatory nuclear strike. This ambiguity is now often thought by military analysts to have deterred Saddam from making such an attack. The Gulf War example serves to show the United States' lack of preparedness for a biological attack and its inability to protect troops without relying on a nuclear deterrent.

The second action that the Bush administration took to protect U.S. troops in the Gulf War was to use

an anthrax vaccine. Troops were inoculated before being deployed, but the program met with some challenges because (a) there was not enough vaccine for all U.S. troops, and (b) the vaccine could not be offered to coalition partners. After the war, the U.S. military mandated the vaccination of all active-duty troops. But problems began to occur with the anthrax vaccine produced by the contractor BioPort. BioPort failed to pass Food and Drug Administration (FDA) inspections and was running into constant trouble in producing the vaccine. More importantly, there were questions about the reliability of the vaccine itself. What types of anthrax would it protect against? What were the long-term health affects of the vaccine? These are just a few of the problems that the authors of *Germs* point out when discussing the difficulties that the military and government have in trying to protect and plan for a potential biological weapons attack.

Today's Situation

In discussing the current situation, *Germs* makes three main points. First, the authors argue that the threat of a biological attack against the United States is both real and exaggerated. Second, worldwide research on offensive biological weapons work is greatly ahead of research on defensive measures. Finally, the authors assert that the United States needs greater coordination among various government agencies to effectively counter an attack.

Germs addresses the dangerously-growing gap between offensive and defensive research on biological warfare by looking at both the American and Soviet biological weapons programs. Both programs had invested significant resources into offensive biological weapons research—yet very little went into defensive work. This disparity became evident during the Gulf War, when the United States was unable to deploy a reliable detection system to protect its troops in Saudi Arabia. According to the book, the U.S. biodefense program is currently trying to close these gaps.

The authors also show how offensive biological research is greatly outpacing defensive research by highlighting (a) the Soviet biowarfare program, (b) the U.S. inability to deploy any type of reliable detection system, (c) constraints placed on U.S. defensive research
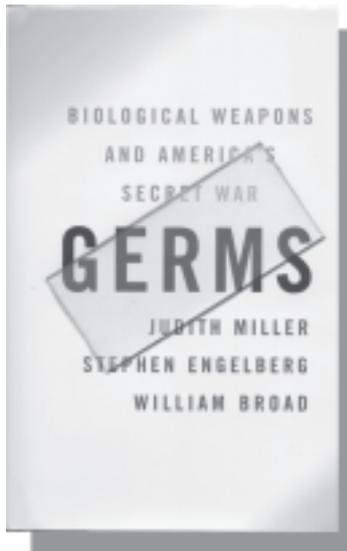
by the Biological Weapons Convention (BWC), and (d) the United States inability to get biological samples from the former Soviet program in order to test the effectiveness of U.S. vaccines.

Before its collapse, the Soviet Union was in the process of creating "super bugs," or specially engineered biological agents. At the same time, the United States had grossly inadequate capabilities for creating or deploying a reliable biological-attack detection system. In addition, the United States was constrained in its research by the BWC. The BWC allowed the United States to conduct defensive research only, but the line between defensive and offensive work was difficult to determine. (For instance, there were debates among civilian advisory committees created by the CIA over whether CIA projects that explored the potential dissemination effectiveness of enemy biological weapons were a violation of the BWC.) And, as noted above, the United States has also been unable to get biological samples from the former Soviet Union program to determine if their vaccines are effective against Soviet-produced bioagents. This lack of access is a critical problem: without the samples, the United States cannot be assured of the effectiveness of its vaccines.

With the current unprecedented economic, military, and diplomatic power of the United States, many analysts believe that asymmetric means of challenging that power will be the more likely means of future warfare. Hostile states and non-state actors are increasingly looking at this type of warfare to take advantage of America's weaknesses. States other than the former Soviet Union have biological weapons programs, and the threat these weapons pose is quite real. But the authors of *Germs* argue that, while the threat to the United States from a biological weapons attack exists, "senior [U.S.] officials overstated the danger of biological attack, harming their cause with hyperbole. Similarly, political leaders undermined their credibility by asserting that a biological attack was inevitable in the next few years" (p. 315).

For instance, former Secretary of Defense William Cohen went on ABC's news show "This Week" in 1997 with a five-pound bag of sugar, claiming that five pounds of anthrax could kill half the population of

Washington, DC. In most cases, the release of five pounds of anthrax would indeed kill many people—but certainly not the amount that Cohen claimed. Clinton and George W. Bush administration officials have also stated that biological attacks on the United States are a certainty. The authors argue that such overstatements actually hurt efforts to raise public consciousness on the issue.

Finally, the authors of *Germs* argue that there is significant overlap in the work of U.S. government agencies in their preparation for a biological weapons attack. While considerable funds have been thrown at the problem, there have been few attempts to coordinate the efforts of government agencies into a coherent national strategy for the United States. (Only in the wake of September 11 has the government created a separate organization—the Homeland Security Office—to tackle this issue; and its success is far from assured). This lack of cohesion and organization could lead to confusion regarding roles and responsibilities during an attack, with agencies fighting over whom has jurisdiction and control. For example, the U.S. government has made several attempts to create "special committees" of scientists to advise the work of agencies dealing with biological-weapons threats and to reduce overlap. However, these committees have had very little real authority in initiating change and have only been marginally effective.

Germs also outlines what the future likely holds regarding U.S. preparations for a biological weapons attack. The authors argue that the United States will most likely focus its defensive research in two areas: (a) vaccine research, and (b) funding of "special" research projects. Vaccine research would test the effectiveness of current vaccines while creating vaccines for other potential biological weapons agents. The Defense Advanced Research Projects Agency (DARPA), with its mandate to advance technological solutions, is currently funding research to create reliable detectors and break down the genetic code of agents in order to develop vaccines.

In conclusion, *Germs* does an exceptional job of taking the reader on a journey through the national security issues and challenges the United States faces in dealing with biological weapons. **W**

Robert Wyman is a research assistant at the Chemical and Biological Arms Control Institute (CBACI).

The Environmental Consequences of War: Legal, Economic, and Scientific Perspectives

Jay E. Austin & Carl E. Bruch (Eds.)
New York: Cambridge University Press, 2000.
  691 pp.

Reviewed by **Elizabeth L. Chalecki**

This volume draws from research connected to the "First International Conference on Addressing Environmental Consequences of War: Legal, Economic, and Scientific Perspectives," held in Washington, DC in June 1998. An extremely timely volume in the wake of the UN Environment Programme's decision to open a permanent Post-Conflict Assessment Unit, *The Environmental Consequences of War* uses the 1991 Gulf War and the 1999 Kosovo conflict as templates to examine the effects of war on the environment.

The editors, Jay Austin and Carl Bruch from the Environmental Law Institute, have not produced a foolproof method for measuring environmental damage from war. On the contrary, Austin and Bruch note that, while our legal system prefers to adjudicate all issues to closure as soon as possible after they occur, our current economic and scientific methods to measure damage are quite limited, and full and accurate damage estimates may take years to uncover.

Austin and Bruch also point out that they are not addressing what they consider to be "environmental security" (i.e., how natural-resource shortages and environmental degradation can result in armed conflict). Rather, they are considering only the environmental effects of war, not its environmental causes. The editors also recognize that some might view an examination of war's environmental impacts as insensitive to the human toll of war. But they are quick to point out that these impacts have collateral effects on humans.

To get an overview of the nearly 700 pages of *Environmental Consequences*, readers should start with the introductions to each of the book's sections. On the whole, the authors have not made specific policy recommendations. Rather, they approach the problem of the environmental effects of war from many different angles. Some of these approaches include: a detailed consideration of the public health effects of defoliants, an assessment of environmental damages under the Law of the Sea, and a detailing of the U.S. Navy's

attempts to develop operational guidelines that balance military necessity with environmental protection.

Legal Status of the Environment During Wartime

The environment has always suffered during war, but two factors now make environmental damage caused by armed conflict of particular concern to military commanders. First, in the wake of peacetime environmental degradation such as climate change, the public has become increasingly aware of environmental issues and will likely find extreme environmental damage during war unacceptable (even if collaterally incurred). Second, developments in

"rules of war" treaties—such as the 1925 Geneva Protocol, the four 1949 Geneva Conventions, and the 1977 Environmental Modification (ENMOD) Convention—as well as arms-control agreements such as the 1959 Antarctic Treaty. He argues that, while the terms and provisions contained in these treaties and norms of international law are not complete, they do provide more protection for the environment during wartime than a superficial reading would indicate. Collectively, these treaties and agreements encompass four principles: (1) proportionality of action; (2) discrimination in selection of targets; (3) use of minimum force necessary; and (4) prohibition of

> **War can damage the ecosystems of entire regions, creating synergistic effects between the environment, public health, and other parts of society.**
> **—Elizabeth L. Chalecki**

military technology—such as depleted uranium weapons—can make armed conflict more environmentally devastating than ever before.

The overview chapter by Christopher Stone ("The Environment in Wartime: An Overview") raises several types of questions that frame our thinking about the subsequent material. First, *ethical:* How should the environment be treated in wartime? Should we protect the environment for our sake or for its sake? Second, *practical:* What is a realistic amount of conflict-produced environmental damage that could also be acceptable to the general public? Are there training or command procedures that allow field personnel to assess possible environmental damages? Finally, *legal*: Would peacetime environmental laws be suspended in wartime? How are damages to be measured and how are they made collectible? How can we create moral conditions favorable to encourage compliance with environmental warfare laws? Consideration of these questions implies that environmental protection should be considered a fundamental priority—a condition that Stone admits may sometimes be eclipsed in wartime by military necessity.

Part II of *Environmental Consequences* begins by examining the legal standards applicable during wartime and how these might or might not include environmental protection. In "The Law of War and Environmental Damage," Adam Roberts examines international legal provisions to determine if they adequately restrict the environmental damage done by military operations. Specifically, Roberts looks at

unnecessary force.

Each of these principles seems to rule out massive environmental destruction. And Roberts argues that, when taken together, these principles can be construed to protect the environment during wartime, even if they do not mention the environment specifically. If the conflict is a civil war, however, these international rules of conduct still apply only if states adopt them voluntarily. Given this patchwork of laws, principles, and treaty provisions, Roberts concludes that it is not worth negotiating a new comprehensive framework for environmental protection during war because such a negotiation might open up contentious issues and be unenforceable.

But Richard Falk ("The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime") disagrees with Roberts, arguing that existing laws are not enough to protect the environment during war because operational logic on the battlefield elevates (a) military necessity, and (b) the judgment of the battle commander over environmental protection and legal constraints. To help surmount this operational divide, Arthur Westing ("In Furtherance of Environmental Guidelines for Armed Forces During Peace and War") specifically recommends further development of self-imposed environmental guidelines for troops during wartime, many of which may duplicate international treaties.

The second half of Part II looks at what lessons can be learned from other legal regimes that are currently applicable during peacetime. Silja Vöneky

writes in "Peacetime Environmental Law as a Basis of State Responsibility for Environmental Damage Caused by War" that peacetime environmental treaties (such as the Antarctic Convention and the UN Convention on the Law of the Sea) could remain applicable during wartime if they protect the interests of the international community as a whole. David Caron ("The Place of the Environment in International Tribunals") discusses the use of adjudicative institutions to investigate environmental damages during war. Caron notes that it is very unlikely sufficient funds would be available from a defeated nation to make post-war environmental reparations. To this end, Jeffrey Miller ("Civil Liability for War-Caused Environmental Damage: Models from United States Law") suggests a stand-alone liability fund to pay for environmental damages caused by war regardless of culpability.

Valuing National Resources and Public Health

Part III of *Environmental Consequences* begins by addressing the ecological and natural-resource impacts of war, focusing particularly on the terrestrial and marine environmental damage to the Persian Gulf during the 1990-91 Gulf War. For Asit K. Biswas ("Scientific Assessment of the Long-Term Environmental Consequences of War"), the near-total lack of long-term monitoring of warfare sites means that we may never be able to approximate war's true ecological cost. This section of the book also includes an interesting chapter by Jeffrey A. McNeely ("War and Biodiversity: An Assessment of Impacts") concludes that societies can stave off conflict by preserving ecological richness and using resources sustainably and equitably.

The second half of Part III expands the discussion to consider the public-health impacts of military preparation for war, war itself, and the outbreaks of disease that often follow war. The book provides a rational, in-depth discussion of the threat of chemical and biological agents, divorcing these topics from popular media hysteria. But *Environmental Consequences* itself provides little comfort about these threats: aside from recognized dangers of weapons such as anthrax, the book discusses microbes that can be engineered to be antibiotic-resistant, potentially making a country's first line of defense against biological attack useless.

Economics and Future Ideas

Part IV of the book looks at recent research into placing a monetary value on war's damage to the environment. Most environmental economists know the myriad problems inherent in environmental valuation during peacetime—chief among them, the difficulty of measuring the non-monetary worth of an ecosystem. Valuing economic damages to the environment as possible war reparations adds new elements of scope and interconnectedness to this task. War can damage the ecosystems of entire regions, making substitutes for various ecosystem services difficult to find and creating synergistic effects between the environment, public health, and other parts of society. For example, petroleum fires such as the ones in Kuwait at the end of the Gulf War result in air pollution, which in turn affects public and agricultural health. Furthermore, the weaknesses (such as wartime fears and cultural differences) in both survey-based and insurance-based valuation methods are only exacerbated during war.

Part V focuses on new ideas for future environmental protection during war. It includes an analysis and critique of the Draft Convention on the Prohibition of Hostile Military Activities in Protected Areas, which Richard Tarasofsky (in "Protecting Specially Important Areas During International Armed Conflict") feels has considerable merit by balancing military and humanitarian concerns). This section also deals with the use and limitations of the newly established International Criminal Court.

Environmental Consequences is not a casual read by any means. Rather, it is full of detailed arguments and discussions about (a) how we could measure war's damage to the environment, and (b) whether further regulation of war will have any useful effect. The authors have done a thorough and clear job of researching the many intersections of conflict and its collateral environmental damages. While no clear consensus emerges in the book for how this damage might be prevented or mitigated, it is useful to know that awareness of the environmental effects of war have made their way into operational thinking—from military rules of engagement to UN treaties. Furthermore, the UN has begun to investigate the environmental damage resulting from conflicts in Kosovo, the Occupied Palestinian Territories, and now Afghanistan. This volume would be an excellent reference for their deliberations. ⩔

Elizabeth L. Chalecki *is a research associate at the Pacific Institute for Studies in Development, Environment, and Security.*

The Trampled Grass: Mitigating the Impacts of Armed Conflict on the Environment

By James Shambaugh, Judy Oglethorpe, and
  Rebecca Ham (with contributions from
  Sylvia Tognetti)
Washington, DC: Biodiversity Support
  Program, 2001. 135 pp.

Reviewed by **Edmond J. Keller**

The Trampled Grass is designed as a guide primarily intended for conservation and natural-resource management practitioners and policymakers as well as the donor community that supports them. Secondary audiences include the relief community, development organizations, local communities, and others interested in mitigating the impact of armed conflict. This publication is based on the results of the Biodiversity Support Program's Armed Conflict and the Environment Project. (The Biodiversity Support Program, now disbanded, was a consortium of the World Wildlife Fund, the Nature Conservancy, and World Resources Institute.)

The guide's title indirectly indicates the work's geographical focus on sub-Saharan Africa, referring to an old African proverb ("When elephants fight, it is the grass that suffers") that inspired the authors. In the context of present-day Africa, this theme suggests that when armed conflicts occur, it is the environment and the people who rely on that environment that suffer.

Between 1970 and 1995, there were 30 incidents of large-scale armed conflict in sub-Saharan Africa— and all but two of them were internal wars (Myers, 1996). In 2000 alone, 18 sub-Saharan African countries were either involved in or just concluding some form of armed conflict (Gurr et al., 2000). The authors acknowledge that, when armed conflicts erupt, the most pressing priority is to ease human insecurity and suffering. And although the fighting also has a devastating effect on the environment, environmental concerns tend to take a back seat. However, often little thought is given to the long-term effects of environmental degradation caused by civil strife. For example, a degraded environment poses a long-term threat to human security through the depletion of natural resources and destruction of wildlife habitats. The authors argue that, although armed conflicts may be impossible to avoid and create a myriad of complex challenges for conservation practitioners, certain strategies can mitigate their impact on the environment.

The first chapter of *The Trampled Grass* ("Armed Conflict and the Environment") concisely summarizes the book's premise by using recent examples from post-conflict African states of devastating habitat destruction and loss of wildlife, over-exploitation of natural resources, and pollution. The authors note that, "[a]lthough conflicts may start for other reasons, there is a risk that resource depletion and environmental degradation can drag a region into a vicious circle: poverty, further political instability, more armed conflict, greater environmental degradation, and even greater poverty" (p. 11).

The chapter goes on to discuss problems facing conservation organizations trying to work in pre-, post, and current conflict situations. This section highlights some best practices, with most examples drawn from Ethiopia, Rwanda, and the Democratic Republic of the Congo (DRC). Ethiopia, which has experienced prolonged periods of armed conflict, has made efforts to involve local communities living near in the Awash National Park in a biodiversity project that actually played a key role in the park's survival. Conservationists in Rwanda's Virunga Volcano Protected area learned about the value of remaining at their work even in times of severe socio-political conflict. And in the DRC, the study finds that the cooperative efforts of international and national conservation agencies can play a vital role in maintaining conservation projects even during the most severe crises.

The Trampled Grass then briefly introduces several key political, social, and economic issues that can affect conservation efforts during and following armed conflict. These issues include: governance concerns; illicit trade networks in conflict minerals and forest products; proliferation of arms; wartime and post-war rush for resources (as when governments, anxious to recover from war, make rash decisions about environmental exploitation without considering the long-term and/or unintended consequences); international conventions; legal and policy issues; and the spread of HIV/AIDS (which threatens local populations and foreign conservation practitioners).

The second chapter ("What can be done?") addresses practical approaches for the conservation community, governments, NGOs, donor agencies, local communities, and others to reduce the effects of armed conflict on the environment. Rather than providing a blueprint to be applied in cookie-cutter fashion in all places and at all times, the authors suggest picking and choosing among others' experiences to derive the

right formula for particular situations. Guidelines are provided for prevention and preparedness, coping and mitigation, and post-crisis strategies for protecting the environment. The guide also identifies key issues that environmental organizations must address when dealing with the effects of violent conflict. These issues include: assessment; response, monitoring and adaptation; maintaining a conservationist presence in a protected area for as long as possible, even after armed conflict has erupted; personnel management; communication; training for times of conflict as well as for peacetime; need for organizational and programmatic flexibility; and maintaining neutrality.

In considering each of these issues, the authors ask four questions: Who is this for? What is the issue? Why is it important? How to address it? For example, assessment pertains to NGO directors and personnel managers as well as government departments and donors with staff in the field. Assessment helps each of these groups to respond to changing situations during a conflict, to monitor situations, and to adapt accordingly. Such flexibility is important, since the most effective way to protect the environment even during periods of conflict is for conservationists to have a constant presence. *The Trampled Grass* also uses the same analytical approach in considering the whys and hows of collaboration as well as funding and finance issues. In addition, thirty-three boxes with conservation field experiences are dispersed throughout the presentation.

The guide concludes by: (a) broadly defining the conservationist community as all the international, national, and local interests in areas most at risk; and (b) asserting that that community can take a wide range of actions at different levels in armed-conflict situations. Such approaches might include: clearly outlining long-term conservation goals, better planning, understanding impacts, underlying causes, and appropriate mitigation approaches. The authors also call for increased flexibility in conservation programs and more information and analysis as well as improved communication of best practices, better planning, and capacity building at all levels.

While the authors direct their recommendations toward conservation practitioners and those individuals and agents who support their work, *The Trampled Grass* can also inform and educate a much wider audience. In addition to environmental activists, potential beneficiaries include: students examining issues of armed conflict and its social, political, and economic impacts; legislators in donor countries; and even individuals interested in becoming conservation practitioners. **W**

Edmond J. Keller is a professor of political science at the University of California-Los Angeles and the director of the UCLA Globalization Research Center-Africa. His current research includes conflict, conflict management and democracy, and the transnationalization of ethnic conflict in Africa.

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Smokestack Diplomacy: Cooperation and Conflict in East-West Environmental Politics
By Robert G. Darst
Cambridge, MA: MIT Press, 2001. 300 pp.

Reviewed by Matthew R. Auer

By the mid–1980s, Western Europe's view of Eastern Europe was obscured not only by an Iron Curtain, but also (depending on the pollution source) by a smudge of metallic gray or sooty black. In Copsa–Mica, Romania, the faces of children playing outside and the bed sheets hanging on the laundry line were smeared with grime from the carbon black factory. In Budapest, Hungary, diesel exhaust from dyspeptic lorries soiled building facades on nearly every street. In Katowice, Poland, dust and sulfur smoke from the steel plant rained down on soils and row–crops.

From the socialist-planning minister's perspective, belching smokestacks and seething rivers were symbols of an economy firing on all cylinders. A little pollution was a small price to pay in the inexorable march to

the workers' paradise. Unfortunately, that road to paradise was paved with poisons, the workers were sick, and trees stood leafless in summer.

After 1989, Western foreign-aid officials, international lenders, and health and environmental experts helped scrub Eastern Europe's grimy curtain. It seemed that every wealthy country and multilateral bank was ramping up some program or fund to clean up the East. Between 1990 and 2000, donors poured in billions of dollars to that effort. One European Union program alone (the Poland and Hungary Action for the Restructuring of the Economy, or Phare) made nearly 12 billion euros in commitments, much of it for environmental projects (European Commission, 2001, p. 117).
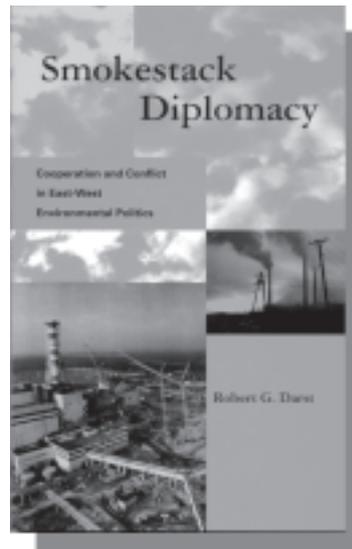
But some Eastern European countries and certain economic sectors benefited more than others from Western environmental aid. For example, while major sources of transboundary air pollution in Russia and the nuclear power stations in Ukraine and Lithuania received hundreds of millions of dollars of grants and loans, cleanup of many other pollution-prone industries and environmentally damaged sites languished for lack of external aid and investment.

In *Smokestack Diplomacy: Cooperation and Conflict in East-West Environmental Politics*, Robert G. Darst argues persuasively that Eastern European governments, the big winners on the receiving end of the environmental aid pipeline, were artful extortionists. According to Darst, these governments were effective at making "environmental threats" and using "environmental blackmail" (p. 11). His analysis is especially compelling for situations in which pollution-prone factories or antiquated nuclear power plants posed serious transboundary risks to the relatively wealthy countries west and north of the grimy curtain.

For example, in superbly researched case studies, Darst argues persuasively that former Soviet republics bribed the West to (a) clean up major point-sources of transboundary pollution in Russia and Estonia, and (b) pay for the prospective modernization and/or closure of the Ignalina and Chernobyl nuclear power plants. In the process, the West extended the productive life of environmentally dubious and economically backward industries, thereby ensuring an uninterrupted income stream to the briber.

But another major case—the pollution clean-up in the Baltic Sea and Baltic Sea drainage basin—does not comfortably fit the "extortion model," and it forces Darst to deviate from his intriguing argument. To the extent that there is "instrumental manipulation of external environmental concerns" by the East in the Baltic Sea, that manipulation is comparatively benign. According to Darst, the goals of the East (and in particular, Russia, the Baltic States, and Poland) and the West (especially the Nordic countries and various international financial institutions who provided loans for environmental cleanup) did not work at cross-purposes in the Baltic case. Instead, the players' goals could simply be added together in mutually satisfactory package deals: Both sides obtained reductions in organic wastes, a wide range of chemical pollutants, and phosphorus; the recipients obtained improvements in the supply and purification of drinking water; and the donors obtained reductions in nitrogen, the limiting nutrient in the open sea (pp. 87-88).

While the Baltic Sea case makes for somewhat strange company in *Smokestack Diplomacy* with the East-West transboundary-air-pollution and nuclear-power-safety cases, Darst nevertheless presents it expertly. Indeed, in all three cases, the author deftly weaves together primary source material, interviews, and articles from local media sources to recreate the context for East-West environmental cooperation in the 1990s. He also elucidates the strategies and tactics of both donors and recipients.

The great triumph of *Smokestack Diplomacy* is not the originality of the cases themselves. Others have traveled these paths (see, for example, Mäler, 1989; Tahvonen et al., 1993), and earlier efforts mostly model what Darst confirms. But Darst's nuanced application of Ronald Coase's famous formulation of environmental extortion is a significant step forward in analyzing these cases. Darst steeps Coase's formulation—that bribing the perpetrator to cease polluting may be as efficient or *more* efficient than

having the polluter compensate the victim (Coase, 1960)—in the complex interstate and *intra*state politics of East-West cooperation. In the case of nuclear power safety, for example, Darst notes that

> …the distribution of the economic benefits of a transnational bribe is at least as important as the reduction in transboundary pollution or risk that such a payment is ostensibly intended to bring about. Donor economic interests have a threefold effect upon transnational subsidization programs: They shape who does the work and what sort of work gets done; they shape the distribution of contributions among the donors; and they may lead a state to engage in transnational subsidization even in the absence of any transboundary environmental damage from the source in question (p. 41).

Smokestack Diplomacy offers ample environmental evidence for an old proposition in international relations: the state with the weak hand uses unconventional means to gets its way. In the Eastern European-Western European environmental context, that way is for the weaker Eastern state to cajole, threaten, and ultimately blackmail the stronger, richer Western party into cleaning-up the former's environmental mess and helping modernize its economy. Darst tells this story so well, especially in exposing the hidden agendas of the East, that one wonders whether future environmental blackmailers will be forced to devise new tricks. **W**

Matthew R. Auer is an assistant professor of international environmental affairs at Indiana University's School of Public and Environmental Affairs.

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Learning to Manage Global Environmental Risks (2 vols.)

By The Social Learning Group
Cambridge, MA: MIT Press, 2001. 593 pp.

Reviewed by **Ken Conca**

This vast, dense, and richly engaging study examines long-term policy trajectories on acid rain, stratospheric ozone depletion, and climate change in several countries. In doing so, it breaks important new ground in the effort to understand national responses to global challenges. By tracing the science, politics, and policy surrounding these issues across time and geography, the authors of this collection provide a uniquely detailed comparison of how governments, scientific communities, and nongovernmental organizations in different national settings have responded to the challenge of managing environmental risks.

The authors set themselves four central conceptual tasks: (1) to understand the interrelationship of science, politics, and policy that impacts how countries respond to perceived environmental problems; (2) to explain why some problems demand a managed response while others do not; (3) to understand when and how "institutions, interests, and ideas" shape those management responses; and (4) to identify how ideas spread across both borders and environmental issues. The two volumes document the evolution of responses to acid rain, ozone depletion, and climate change in Britain, Canada, Germany, Hungary, Japan, Mexico, the Netherlands, the (former) Soviet Union, the United States, and the European Community as a whole. The picture that emerges is instructive if not always pretty.

The first volume of *Learning to Manage* presents a framework organized around the "management functions" of risk assessment: monitoring, options assessment, goal formulation, implementation, and evaluation. These management functions are then traced through the book's country-level historical case

studies. Some of these stories are well known, such as Germany's catalytic Greens. *Learning to Manage* also recounts the United States' environmental interest-group scrum (which developed without a widely-shared conception that the United States had a national interest in global environmental affairs) as well as Russia's evolution from the vagaries of Soviet-era environmental diplomacy to post-Soviet institutional collapse and disengagement on green issues.

see as central to effective environmental policy. How well have governments assessed risk, monitored environmental trends, evaluated options, formulated goals, implemented response measures, and evaluated performance of their policies? One could spin *Learning to Manage*'s principal findings on these questions either positively or negatively, and whether readers find these glasses half-empty or half-full may depend on their dispositions.

While we may manage global environmental risk more effctively today, this improvement seems to represent a side effect of policy—not a central purpose.
—Ken Conca

But some of the more interesting findings, possibilities, and cautionary tales emerge from the less well-known cases. For example, the British case documents a recurring tendency to muffle voices from outside the scientific and political-bureaucratic establishment, be those voices from NGOs or less well-connected scientific perspectives. One result has been that learning "has to take place in ways that do not acknowledge contributions from outside the existing institutional circles" (vol. 1, p. 108). In Hungary, a "small-country complex" (vol. 1, p. 184) and pressures to catch up with the international environmental bandwagon created continuity in the approach to these problems across the post-socialist divide. Japan's recognition that it was a relative latecomer to global environmental science and politics stimulated the Japanese government to engage in a wide range of educational, scientific, and even NGO-catalyzing activities (including taking a leadership role at the 1992 Earth Summit, engaging with China on acid rain concerns, and hosting the Kyoto climate meeting). Regardless of the reader's familiarity with these national stories, their presentation in conjunction with long time-horizons, deep historical roots, and a common framework of questions (emphasizing risks and responses) offers a useful and novel approach. The cases strike a nice balance: they provide a common, cross-national template for comparison while also allowing space for the authors to tell particular national stories.

Volume Two then probes for cross-cutting truths that might be culled from the different countries and issue areas under consideration. In so doing, it returns to the core "management functions" that the authors

On the one hand, elements of learning—which the authors define as cognitive changes deriving from experience and seeking policy objectives—do appear across a majority of the case studies. These elements include greater problem awareness; more comprehensive monitoring; several examples of relatively effective risk assessment; improved implementation efforts (driven in no small measure by international cooperation); and broadened participation. Taking the long view, these gains are undeniable.

But the cases also show how policymakers consistently fail to weigh all alternatives or set goals in a process apparently captured repeatedly by one particular set of means. The issue of emissions reductions exemplifies this problem, in that emissions targets have a way of crowding out all other perspectives on the problem. Along with declining resources, environmental monitoring faces "increasing politicization" (vol. 2, p. 42), as in the famous dispute between the World Resources Institute and some of its critics from the global South over how to construct an index of national climate emissions. However, the volumes as a whole tend toward a cautious optimism, focusing on recommendations for performance improvements rather than sounding a clarion call for dramatic reorientations of direction.

One limitation—or perhaps more accurately, missed opportunity—of *Learning to Manage* is its lack of attention to the global South. The choice of three problems that play out in the same medium (the atmosphere) and unfold along a broadly similar period of three or four decades is certainly defensible. So is the important goal of determining whether "learning"

spreads from experience in any one of these three issue areas to the others (for the most part, the answer appears to be that it doesn't). Nevertheless, the great challenges facing 21st century global environmental governance also include protection of critical ecosystems, stabilization of our tampering with global nutrient cycles, and the looming water security dilemma. These issues are no less important than climate or ozone, and grappling with them—managing their risks effectively, as the authors of this study would likely frame the challenge—will demand not only improved functionality across the different stages of the policy process but also more pluralistic ways of knowing and forms of dialogue.

For the sole developing-world case presented here (Mexico), these atmospheric concerns hardly constituted either the central environmental challenge or a major political issue during the period of the study. We are left to wonder, therefore, what a truly global social trajectory of learning to manage environmental risks might look like. (To their credit, the authors recognize this problem and identify the absence of the South from their analytic terrain as their greatest regret.)

Beyond its substantive findings, *Learning to Manage Global Environmental Risks* is also noteworthy as a unique endeavor of scholarly collaboration. An international team of thirty-seven scholars documented and interpreted these different national experiences under the editorial guidance of William Clark, Jill Jäger, Josee van Eijndhoven, and Nancy Dickson. The choice to attribute authorship of the volumes to "The Social Learning Group" seems apt, since the main arguments flow across several chapters and produce a cohesive volume. Team-writing helped achieve this effect: teams prepared several of the country-level cases, while country- and task-level specialists collaborated on the second volume's functional chapters. The chapters adhere admirably to a template of common conceptual and practical questions. No doubt this created a Herculean editing task. But the unprecedented complexity of global environmental change demands new models of scholarly collaboration as well as new forms of knowledge integration, a direction in which these volumes take a strong and confident step.

Most importantly, although the volumes provide some evidence of effective risk management, the findings do not lead to the conclusion that the quest for such effectiveness has driven policy in these issue areas. In other words, while we may manage risk more effectively today, this improvement seems to represent a side effect of policy—not a central purpose. The authors aptly describe their work as "a historical reconnaissance of the formative years of the global environmental era." Their carefully researched findings suggest that, although we sometimes move in the right direction, we are still looking for the compass. W

Ken Conca is an associate professor of government and politics at the University of Maryland, where he directs the Harrison Program on the Future Global Agenda. His research and teaching focus on global environmental politics, political economy, environmental policy, North-South issues, and peace and conflict studies.

Managing Global Issues: Lessons Learned

P.J. Simmons and Chantal de Jonge Oudraat (Eds.)
Washington, DC: Carnegie Endowment for International Peace, 2001. 772 pp.

Reviewed by **Stacy D. VanDeveer**

Managing Global Issues: Lessons Learned is one of those rare books that delivers what its broad title promises. It draws interesting, important, and empirically grounded lessons from the history of international cooperation in a diverse range of global issues. And while the literature of international politics—like the field's practitioners—all too rarely draws lessons across the porous boundaries of its various issues areas or subfields (such as security, international political economy, human rights, and environment), *Managing Global Issues* seeks to do just this.

Managing Global Issues's sixteen issue-area chapters discuss international cooperation around such issues as: (a) *corruption and organized-crime*; (b) *international political economy* (communications, development assistance, global finance, international trade); *the environment* (nature conservation, pollution, and managing the use of global commons); (d) *human health and rights* (global health threats, human rights, labor rights, and refugee protection and assistance); and (e) *security* (civil/intrastate conflict, conventional weapons,

and weapons of mass destruction). All of these case chapters are written by respected area analysts. Simmons and Oudraat contribute informative and well-organized introductory and two concluding chapters.

To maximize the book's utility, the editors asked each author in *Managing Global Issues* to

describe for non-experts the nature of the principal governance issues in their respective fields; review the record of success and failure in the problem solving; identify which actors, techniques and types of regimes were most effective in each phase; and explain the factors that determined the overall outcomes (p. 11).

Specifically, each of the chapters addresses lessons from five categories: actors, agenda-setting, negotiation, implementation and compliance, and reactions to noncompliance. Within each of the five categories, authors were also asked to answer a small set of questions. This framework streamlines the case discussions, allowing readers to better understand cooperation around issues with which they may be unfamiliar. And while *Managing Global Issues* does draw lessons about regime creation (particularly concerning negotiation processes and outcomes as well as how influential actors sway agenda-setting), its framework also pushes authors and readers beyond these discussions, which have often preoccupied analysts.
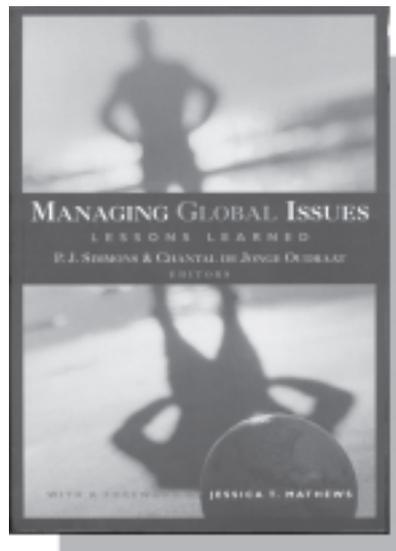
Of note is the book's substantial contribution to the increasingly rich literature on implementation and compliance—or, as the editors entitle it, "From Accord to Action." For Simmons and Oudraat, *implementation* "takes in the broad range of activities that state and nonstate actors undertake to promote actions and behavioral changes in accordance with agreements," while *compliance* "broadly describes the condition of state and nonstate parties' actual adherence to binding or nonbinding rules or to aspirational goals" (pp. 12-13). While it remains difficult to generalize about implementation, Simmons and Oudraat highlight a number of factors that appear to increase implementation levels. These factors include: (a)

exemplary leadership and performance/implementation reviews conducted with relatively independent expertise and data in a transparent manner; (b) retaining respect for sensitive information; and (c) using uniform and clear evaluations standards. Institutionalizing such review takes time, of course, but a number of cases in *Managing Global Issues* demonstrate that such institutionalization is possible.

Simmons and Oudraat also focus on the need to manage the various incapacities of participants (including states, international organizations, and civil-society actors) in international cooperation. To facilitate and encourage implementation and compliance, such capacity-building programs may be required at levels from international to local. These programs also generally require the expenditure of some resources; few agreements within global cooperation are "self-enforcing."

One of the most important contributions of *Managing Global Issues* lies in its discussions of various responses (including lack of acknowledgement and official response) to *noncompliance*. Simmons and Oudraat assert a distinction between "willful" noncompliance and noncompliance due to incapacity/inability. Capacity-building programs can often address the latter. Teasing out willful noncompliance from other types is useful analytically, though it must be said that making such distinctions in practice remains exceedingly difficult.

Of course, most international cooperation arrangements contain no defined punitive measures for noncompliance. Only a few have defined and well-used complaint, adjudication, or arbitration procedures; and these procedures are highly varied across issues and regimes. The most common response to noncompliance is publicizing ("shaming") it. While this strategy is sometimes used by state-actors, it is most common among NGOs. *Managing Global Issues* contains numerous examples of the successful use of such tactics to encourage actors to take additional measures toward implementation and compliance. Lastly, the volume also draws out important examples of "implementation by imitation," facilitated by transgovernmental and civil society contacts and/or by private sector self-regulation.

Managing Global Issues serves as an informative "state of the art" assessment of strategies, institutions, and processes that can help to facilitate successful international cooperation around issues of global concern. In particular, it confirms oft-cited (but sometimes unexamined) claims concerning NGOs and civil society. These sectors often drive the international agenda—yet, as the book makes clear, they usually do so in coalition with some important state actors (though not always the most "powerful" states). For example, such state-civil society partnerships greatly influenced policy outcomes and international programs around a range of issues including nuclear non-proliferation and the campaigns to ban landmines, fight state corruption, and reduce the debt burden of the world's poorest states. The book also stresses that analysis and practice of global international cooperation can get beyond merely trying to solve challenges to collective action. Effective global governance requires more than successful negotiations that produce international agreements. It requires that we learn from successes and failures in implementation, compliance, and reactions to noncompliance within and across issue areas—and that we apply these lessons in our attempts to solve global problems.

Each chapter of *Managing Global Issues* notes some successes and failures in its issue area. But those authors that see successful cooperation tend to draw lessons mainly from that success, while those who generally see examples of failed cooperation draw lessons from those failures. To get beyond lesson-drawing, the authors and editors must embark on more systematic comparative analysis. When and why, for example, did strategies or institutions used successfully in one area fail in another? While *Managing Global Issues* helps to lay the empirical foundation for these comparative questions, it cannot answer them. The book also generally ignores the persistent critics of international cooperation (many of them in Washington, DC, where the research project that preceded the book was coordinated). The editors and authors might have addressed the skeptics more directly and connected their concerns with the complex and rich record of success they accord attempts at global governance.

These limitations aside, *Managing Global Lessons* is recommended for anyone who wants to gain greater understanding of world politics and for anyone who may want to improve collective efforts to solve global problems. The book also recently passed one crucial test: both my students and their professor found it excellent for classroom use. **W**

Stacy D. VanDeveer *is an assistant professor of political science at the University of New Hampshire. He teaches and conducts research in the areas of international environmental politics and policy, U.S. foreign policy, European politics and institutions, and the linkages between environmental and security issues.*

Understanding Vulnerability: South Asian Perspectives
John Twigg & Mihir R. Bhatt (Eds.)
London: Intermediate Technology
Publications, 1998. 84 pp.

Reviewed by **Mike Brklacich**

Extreme natural events such as cyclones, floods, and earthquakes occur worldwide, but their threat to human lives and human livelihood are far greater in the developing world than elsewhere. *Understanding Vulnerability* seeks to dispel the myth that "natural disasters" are infrequent aberrations imposed on communities. The book instead argues that human vulnerability to these extreme events is invariably linked to unequal development and impoverishment. The document is composed of an introduction and four papers selected from a Duryog Nivran workshop in Sri Lanka in 1997 plus an introduction. (The Duryog Nivran Network promotes new perspectives on disasters and vulnerability as a foundation for more effective disaster-reduction efforts.)

John Twigg's introduction to *Understanding Vulnerability* argues that, to provide a more effective foundation for mitigating disasters, researchers should focus on case studies rather than further attempts to conceptualize and model human vulnerability. In Twigg's words: "Vulnerability is too complicated to be captured by models and frameworks…There are no common measures or indicators of vulnerability" (p. 6). Next, in the chapter "Women Victims' View of Urban and Rural Vulnerability," Ela Bhatt relies on focus groups to unpack impoverishment-disaster relationships in Gujarat State, India. Bhatt discovers that non-farm employment was scarce in rural areas of Gujarat State, and that disasters there not only resulted in loss of shelter but also wage losses which, in turn, only deepened vulnerability to further stressors. And while employment opportunities were

more plentiful in Gujarat's urban areas, vulnerability there was more closely tied to: (a) poor accessibility to shelter on an ongoing basis; (b) larger distances amongst family members (which contributed to meager family support for disaster victims); and (c) threats from urban officials. Overall, Bhatt's chapter illustrates that both urban and rural women are chronically vulnerable to external stressors; it also highlights the wide range of factors that limit coping capacity within the two groups.

Senaka Arachchi's following case study ("Drought and Household Coping Strategies among Peasants Communities in the Dry Zone of Sri Lanka") documents the wide range of coping strategies employed at the local level in Sri Lanka to reduce drought impacts. Arachchi concludes by calling for policies (such as diversification of household incomes) that would reduce vulnerability to drought to replace the current focus on drought-relief measures. The third case study, Ngamindra Dahal's "Coping with Climatic Disasters in Isolated Hill Communities of Nepal," investigates threats to Nepali villages stemming from floods and landslides. As with Bhatt's case study, Dahal's work reveals that not all communities within a region are equally vulnerable to environmental threats. Coping and recovery capacity are conditioned by social and economic impoverishment. Disasters result when there is a convergence of inadequate coping capacity and severe environmental conditions. Mihir Bhatt then concludes the book with an essay calling for relief and development programs to move beyond imposing externally developed blueprints and to develop more effective methods for engaging disaster victims.

Understanding Vulnerability adds to the growing body of literature that recognizes that (a) disasters are inextricably linked to the failure of development, and (b) focusing on environmental threats provides little insight into reducing human vulnerability and preventing future disasters. However, the book's claim that vulnerability can only be understood at the micro-scale seems exaggerated: the case studies themselves demonstrate the need to consider how unequal development and impoverishment ultimately result in differential vulnerability. Surely there are some general lessons that could be extracted from these rich and welcome case studies. Instead of dismissing the importance of embedding comprehensive case studies within a broader framework, the book could have been more instructive had it addressed issues relating to the transferability of place-based research. **W**

Mike Brklacich *is associate professor in the Department of Geography & Environmental Studies at Carleton University. He is also director of the Global Environmental Change & Human Security Project (GECHS).*

The Wellbeing of Nations: A Country-by-Country Index of Quality of Life and the Environment

By Robert Prescott-Allen
Washington, DC: Island Press, 2001. 342 pp.

Reviewed by **Thomas M. Parris**

If the concept of sustainable development is to prove useful in both policy and scientific contexts, it is essential to define the concept in measurable terms. Without such a mechanism, we cannot know if we are making genuine progress toward or away from sustainability.

In itself, this call for a sustainability yardstick is not a new idea. Much effort has been devoted to the topic of sustainability indicators from local to global scales (IISD, 2000). Global-scale examples include the work of the United Nations Commission on Sustainable Development, the Consultative Group on Sustainability Indicators, the World Economic Forum, and the World Wide Fund for Nature International (UNDSD, 2001; CGSDI, 2001; WEF, 2002; and WWF, 1998). But despite this large body of work, the U.S. National Research Council's Board on Sustainable Development recently found that "there is no consensus on the appropriateness of the current set of indicators or the scientific basis for choosing them. Their effectiveness is limited by the lack of agreement on what to develop, what to sustain, and for how long" (NRC, 1999, p. 243).

Robert Prescott-Allen bravely enters this difficult territory with the publication of *The Wellbeing of Nations.* At its core, this book presents two indices: the Human Wellbeing Index and the Ecosystem Wellbeing Index. It then discusses ways in which these two indices can be combined to measure what Prescott-Allen calls "distances to sustainability."

The indices are global in scope and use countries as the basic unit of analysis. Each is constructed from

sub-indices for five "dimensions." The Human Wellbeing Index is based on health and population, wealth, knowledge and culture, community, and equity. The Ecosystem Wellbeing Index is built from indices for land, water, air, species and genes, and resource use. The bulk of the book is consumed with colorful maps and discussions of each of the many variables that comprise each sub-index.

In some ways, this book sets an important benchmark against which future work on sustainability indicators will be measured. First, Prescott-Allen clearly places human needs on equal footing with the state of nature. Most prior efforts are heavily skewed toward one or the other, and much of the internecine warfare within the community revolves around this point. Prescott-Allen circumvents this debate by clearly separating the two concepts and color coding his "Barometer of Sustainability" using the worst of the two scores. Second, he clearly presents each component of the indices by providing a succinct definition of the variable, how it relates to a sustainability goal, and the distribution of the scoring over countries (including a statement of how many countries have missing data). While this may seem a matter of simple bookkeeping, it is notably absent in many prior efforts.

Finally, the author introduces some novel methods for combining individual variables into aggregate indicators. Most prior efforts rely on linear combinations of component variables, usually with equal weighting. Prescott-Allen introduces simple non-linear methods. For example, his score for inland water quality is the "average score of drainage basins in each country, each basin score being the lowest of six indicators, oxygen balance, nutrients, acidification, suspended solids, microbial pollution, and arsenic and heavy metals." These methods avoid the all too common problem of a country looking good because horrible scores on one component (e.g., heavy metals) are averaged out by good scores on another (e.g., suspended solids).

Despite these accomplishments, *The Wellbeing of Nations* still suffers from several deficiencies. First, it falls much too quickly into the use of countries as the basic unit of analysis. There is no discussion of alternative units of analysis (e.g., ecological zones, freshwater basins, or cultural zones) and how they may be more or less relevant to the notion of sustainability. By settling so quickly on the use of countries as the basic unit of analysis, Prescott-Allen is asking us to accept that the actions of national governments are the dominant determinants of future sustainability.

Second, the choice of the ten "dimensions" and their many components is both idiosyncratic and based upon the availability of data. For example, Prescott-Allen chooses equity as one of the five dimensions of the Human 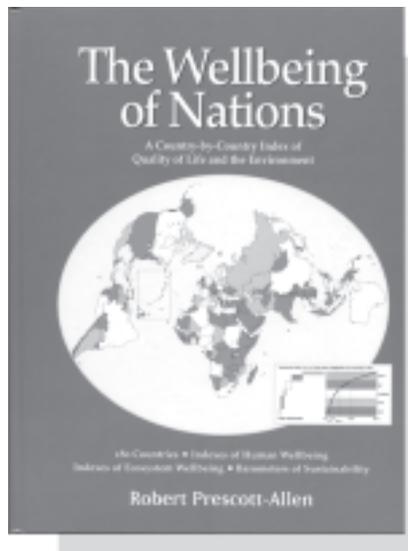Wellbeing Index. Yet it is not clear why this has anything to do with sustainability. Negotiated international consensus documents, such as the United Nations Millennium Declaration (UNGA, 2000), focus on poverty and hunger reduction, not the ratio of the richest 20 percent's income share to the poorest 20 percent's or the percentage of seats in the national parliament held by women. Similarly, it is a leap of faith to assert that Internet use—a component of the knowledge and culture dimension—has anything to do with sustainability. By focusing on the art of the possible and limiting the construction of his indices to existing data sources, Prescott-Allen misses an important opportunity to describe data that are not currently available but are essential to his overall mission (and that could in principle be acquired).

Finally, some of the data is stretched beyond credibility. For example, the local air quality index for Brazil is constructed as an average of air quality data for five cities. It is difficult to see how this figure is truly representative of Brazil's local air quality. A better measure might be the percentage of population living in regions where air pollution exceeds World Health Organization standards.

While *The Wellbeing of Nations* makes key contributions to the field of sustainability indicators, much work clearly remains to be done. Indeed, a distinguished group of scholars recently identified the question "How are long-term trends in environment and development, including consumption and population, reshaping nature-society interactions in ways relevant to sustainability?" as one of the seven core questions of sustainability sciences (Kates et al., 2001). W

New Publications

Thomas M. Parris is a research scientist for ISCIENCES, LLC and executive director of its Boston office. His research focuses on sustainability indicators, environmental information policy, and the role of information systems in supporting productive environmental science and public-policy enterprises. Recent efforts include work on sustainability trends and transitions and assessment of food security in Africa and the risk of political violence in India.

NOTES

[1] See, for example, The Ecologist & Friends of the Earth (2001)

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■ ***Finding the Source: The Linkages Between Population and Water***

Three North-South author teams detail the interconnections between population dynamics, urbanization, social capacity, and water resources. The common message is unmistakable: global water problems are still soluble—but only with concerted international action that includes efforts to address population growth.

■ ***The WTO and MEAs: Time for a Good Neighbor Policy***

Woodrow Wilson Center Senior Policy Scholar William Krist offers timely solutions for potential conflicts between international trade rules in the World Trade Organization and international environmental rules in multilateral environmental agreements.

New Publications

- ### *AVISO 1-10*

AVISO is a public-policy briefing series of The Global Environmental Change and Human Security (GECHS) project, which is cosponsored by ECSP and is a core project of the International Human Dimensions Programme on Global Environmental Change. *AVISO* treats such critical issues as environmental degradation and population displacement, food security, water and human insecurity, and infectious diseases as a security issue.

- ### *Protecting Regional Seas: Developing Capacity and Fostering Environmental Cooperation in Europe*

Proceedings for the May 1999 ECSP cosponsored conference "Saving the Seas: Developing Capacity and Fostering Environmental Cooperation in Europe," which compared and analyzed the state of environmental management around the Baltic, Mediterranean, and Black Seas.

- ### *Crouching Tiger, Hidden Potential: U.S. Environmental and Energy Cooperation with China*

China's energy and environmental policies have an enormous and growing impact on the United States and the rest of the world—yet energy and environmental issues have not played a prominent role in U.S.-China relations. This new ECSP/China Environment Forum publication succinctly summarizes U.S.-China cooperation in the areas of energy and environmental protection. It highlights opportunities for U.S. policymakers, businesses, and NGOs to further such cooperation; it also analyzes barriers to such efforts.

- ### *Green NGO and Environmental Journalist Forum: Conference Proceedings*

Bilingual proceedings for an April 2001 Hong Kong forum cosponsored by ECSP's China Environment Forum that gave 65 environmentalists and journalists from Mainland China, Taiwan, and Hong Kong an opportunity to discuss improving both the capacity of the region's environmental NGOs and the quality of Greater China's environmental reporting.

- ### *Climate Action in the United States and China*

A bilingual pamphlet that sets the context and summarizes significant actions taken by the United States and China to address the threat of global climate change.

Newsletter

- ### *PECS News*

The biannual newsletter of ECSP, *PECS News* features ECSP research, Project news, meeting summaries, reviews of new publications, and reports from the field by University of Michigan Population Fellows working in population-environment projects.

On the Web

Nearly all ECSP publications are also available in PDF form from the ECSP Web site at http://ecsp.si.edu. The Web site also features summaries of all ECSP meetings with photos, speech transcripts, and links to additional resources. In addition, the following publications are available only on the ECSP Web site:

■ ***Contagion and Stability: Implications for U.S. Foreign Policy*** (http://ecsp.si.edu/simulation.htm)

Many senior U.S. leaders are becoming increasingly concerned about the health, economic, and national-security implications of global infectious diseases. A three-day May 2001 simulation conference held at the U.S. Army War College explored what a rapidly spreading plague epidemic in India might mean for regional and international security.

■ ***The Future of the U.S.-Mexican Border: Population, Development, and Water*** (http://ecsp.si.edu/tijuana.htm)

Current migration trends in the U.S.-Mexico border region (coupled with the natural rate of population increase as well as intensified trade) are putting intense pressures on the border's environment, water supply, and health and sanitation infrastructure. This May 2001 conference (cosponsored by ECSP and the University of Michigan Population Fellows Program) discussed the opportunities and constraints facing border citizens and decision-makers over the next 25 years with regard to transboundary water, health, and demographic issues.

CD

■ ***Environmental Change and Security Interviews***

In collaboration with *Dialogue*, the Woodrow Wilson Center's internationally-syndicated radio program, ECSP has produced a series of radio interviews with scholars and policymakers focusing on environment and demographic issues. Interviewees such as former Senator Paul Simon speak on issues ranging from nature writer Rachel Carson to the crisis of fresh water and future scenarios highlighting environmental, demographic, and economic trends.

Video

■ ***HIV/AIDS and Human Security in Southern Africa***

In this 2000 Wilson Center program, Makate Sheila Sisulu, South African Ambassador to the United States, Ron Dellums, former chair of the President's Advisory Council on HIV/AIDS, and Dr. Anthony Fauci of the National Institutes of Health discuss with Wilson Center Director Lee H. Hamilton the devastating HIV/AIDS epidemic in Southern Africa.

New from Johns Hopkins University Press and The Woodrow Wilson Center Press

ENVIRONMENTAL PEACEMAKING
Ken Conca and Geoffrey D. Dabelko, Editors

How can environmental cooperation be utilized as a strategy to bolster regional peace? A large body of scholarly research suggests that environmental degradation may catalyze various forms of intergroup violent conflict. But there is almost no systematic research on an important corollary: that environmental cooperation may also be a useful catalyst for broader processes of regional *peacemaking*. Yet there is a strong basis in theory to think that environmental problems can be exploited to make peace through several channels: enhancing trust, establishing habits of cooperation, lengthening the time horizons of decision-makers, forging cooperative trans-societal linkages, and creating shared regional norms and identities.

> We have little knowledge of how to tailor environmental cooperation initiatives to speak specifically to the problem of violence. Even more importantly, we may be missing powerful peacemaking opportunities in the environmental domain that extend beyond the narrow realm of ecologically induced conflict. We know that international environmental cooperation can yield welfare gains. But can it also yield benefits in the form of reduced international tensions or a lesser likelihood of violent conflict? Such benefits could be a potentially powerful stimulus to environmental cooperation, at a time when such a stimulus is badly needed.

> —Ken Conca, "The Case for Environmental Peacemaking"

Environmental Peacemaking examines the case for environmental peacemaking by comparing progress, prospects, and problems related to environmental peacemaking initiatives in six regions. Although the regions vary dramatically in terms of scale, interdependencies, history, and the essence of insecurities, each is marked by a highly fluid security order—creating potential space for environmental cooperation to have a catalytic effect on peacemaking.

Among the volume's key findings: that substantial potential for environmental peacemaking exists in most regions; that there can be substantial tensions between (a) narrower efforts to improve the strategic climate among mistrustful governments, and (b) broader trans-societal efforts to build environmental peace; and that the effects of environmental peacemaking initiatives are highly sensitive to the institutional form of cooperative activities.

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Environmental Peacemaking is a product of a series of meetings sponsored by the Environmental Change and Security Project of the Woodrow Wilson International Center for Scholars and the Harrison Program on the Future Global Agenda of the University of Maryland.

For more information, contact the co-editors Ken Conca at kconca@gvpt.umd.edu or Geoff Dabelko at dabelkog@wwic.si.edu.