Introduction

Photos: Inset: Logging, Ger Bergkamp/IUCN – The World Conservation Union
Background: Terraced hillside/vulnerable housing, Richard Matthew

Richard Matthew

Richard A. Matthew is Associate Professor of International Relations and Environmental Politics in the Schools of Social Ecology and Social Science at the University of California at Irvine (UCI), and Director of the Global Environmental Change and Human Security (GECHS) Research Office at UCI. He has published articles on environmental issues, ethics in international affairs and international organization. Recent works include an edited volume entitled *Contested Ground: Security and Conflict in the New Environmental Politics* (1999) and *Dichotomy of power: Nation versus State in World Politics* (2002).

Jason Switzer

Jason Switzer is a Project Officer for IISD's Environment and Security initiative. A licensed mediator trained at the Harvard Mediation Program, he has worked on negotiated public consensus-building processes for the World Commission on Dams, for the hazardous waste clean-up of a major military base in the United States, and for the design of earthquake risk management plans in developing country cities. He has several professional publications in the field of Business and Sustainable Development, including two articles for the *Journal of Environmental Quality Management* and a chapter in *ISO 14000: Case Studies and Practical Experiences*, edited by Dr. Ruth Hillary (2000).

Mark Halle

Mark Halle directs IISD's Trade and Investment program and founded its European office in Geneva, Switzerland. He serves as a Senior Advisor to IUCN – The World Conservation Union and the International Institute for Environment and Development (IIED). He worked in the Policy Planning Office of the United Nations Environment Programme (UNEP) in Nairobi and Geneva from 1975 to 1980, and the conservation division of the World Wildlife Fund International from 1980 to 1983 before joining IUCN, where he remained until 1998, successively directing the field operations, fund development and global policy divisions.

A Growing Threat?

"It is time to understand the environment for what it is: *the* national security issue of the early twenty-first century." With these provocative words, journalist Robert Kaplan made an apocalyptic prediction of the shape of things to come.[3] The future he foresaw was one of "disease, overpopulation, unprovoked crime, scarcity of resources, refugee migrations, the increasing erosion of nation-states and international borders, and the empowerment of private armies, security firms, and international drug cartels."

The trends from which Kaplan extrapolated are not encouraging. While today a global nuclear war seems unlikely, over 85 per cent of major wars in the 1990s were fought inside national borders and nearly all took place in developing countries.[4] Insecurity is particularly on the rise in poorer countries, with the last decade of the millennium seeing widespread civil violence in 15 of the world's 20 least developed nations.[5] Civilians are at the greatest risk from contemporary wars, with over 1,400 non-combatants dying each day in the 1990s as a result. And today's local insurgencies can even have global impacts, striking the main streets of the world's financial and political centres.[6]

Why is this happening? An extensive body of research points to the interaction of weak and corrupt political institutions, rapid population growth, sudden impoverishment and growing availability of small arms. Angry, unemployed and marginalized people around the world can acquire unprecedented firepower, and can threaten the stability of governments and regions.

Looming in the background of many of these hot spots, placing massive pressure on societies and especially on their poorest members, is a juggernaut of environmental problems—land scarcity, deforestation, and polluted and overexploited water supplies. While the traditional fuel of ethnic and religious rivalries, economic motivations and personal ambitions still drive violence, these familiar sources of conflict are being amplified by environmental stresses.[7]

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Under such conditions, societies can quickly find themselves trapped in a cycle that repeatedly channels scarce resources into managing crises and their consequences, rather than into development. Critical needs take precedence over considerations for the long-term. In short, civil conflict is inimical to sustainable development. Indeed, it is itself encouraged by unsustainable development.

About This Book

The world invested nearly US$30 billion in humanitarian assistance during the 1990s,[8] largely for response to and recovery from conflict, leaving aside the enormous military and social costs of these wars. Over the same period, nearly 35 million people were displaced by violence and disaster.[9] The cost of humanitarian assistance, which represented 1.7 per cent of international development funds from 1987 to 1989, grew steadily through the early 1990s to 8.4 per cent in 1994. Emergency assistance had become the largest single component (12.91 per cent) of aid to least-developed countries by 1995.[10] Reading the signs, it is evident that the funds available for prevention are increasingly being diverted towards reaction.

This book seeks to answer the following question: Could investment in environmental conservation—more sustainable and equitable management and use of natural resources—offset funds now spent on peacekeeping and humanitarian relief by attacking the roots of conflict and violence, rather than waiting to address their consequences?

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We believe so. Our thesis is that environmental mismanagement and resource scarcity, alone or in conjunction with other forces, can have such a destabilizing impact on communities and societies that they may experience high levels of insecurity and even succumb to violence and conflict. One implication is that better resource management practices might contribute to peace and stability, conditions that are, in turn, essential for development and social justice. A second is that planned conservation of biodiversity can and often should continue during times of conflict and particularly in post-conflict reconstruction. Last, conservation practices may provide a basis for bringing parties who have been or are engaged in conflict together to begin the process of peace building around common environmental concerns.

The contributors to this book develop variations of these insights through a series of detailed case studies taking in a broad sweep of issues and countries. These cases are written by authors whose intimate knowledge and credibility come from firsthand experience on the ground.

The general conclusion is that conservation practices hold great promise for reducing the likelihood of conflict, especially when they are linked to the provision of sustainable livelihoods. Moreover, conservation practices can help reduce the vulnerability of communities to costly natural disasters.

In addition to the particular relevance of this work to the practice of conservation, this volume is somewhat unusual in the environment and security literature in that its authors are predominantly based in the developing world, where they have many decades of experience with environmental and security issues. The lack of analysis coming from developing country practitioners has frequently been cited as a weakness in the literature underpinning the field of environment and security.

Interspersed with the cases in this book are 14 brief summaries of critical issues at the nexus between environment and security. What is the nature of the threat to human societies posed by invasive species? What are the links between refugees and the environment? To what extent are environmental extremists—eco-terrorists—prepared to harm people to protect the environment? Particular examples of resource-related conflicts—within and between countries—are set against tools conservationists might use to reduce insecurity or to operate in times of war.

Many of the tools we present—promoting environmental consciousness among sub-state armed groups, forging international partnerships to manage transboundary river systems and establishing alternative non-violent dispute settlement mechanisms—have the potential for broader application than is the case today.

The concluding chapter draws together the insights from the Task Force deliberations, the cases and boxes, to formulate a set of clear-headed recommendations for how a better understanding of the links between people and the natural systems upon which they depend for their livelihoods can be harnessed to promote peace.

In this introductory chapter we set out the terrain of environment and security, and provide a compass for steering through it. The past decade has witnessed a heated and yet unresolved debate among academics, with most researchers concluding that environmental change is only one stress among many affecting conflict and security, and that its precise role in the chain of causation is hard to specify. In the section that follows this one, we unpack this debate and show that in spite of the uncertainty plaguing all investigations into the causes of violence and conflict, an expanding group of security analysts, academics and field personnel, is convinced that the connections between environment and security are real and command preventative action.[11]

We then introduce the Task Force and institutions behind this book. Rather than wading into a battle over the degree to which environmental factors contribute to conflict and insecurity, this book seeks to fill an important gap between the research community and those people on the frontlines of natural resource management, while informing conflict-resolution and peace-

building practitioners of the results. The Task Force architects come from the field of resource management and conservation, and believe that understanding social and economic forces is as essential to the preservation of biodiversity as knowledge of natural systems. Critically, the Task Force seeks to bridge the gap dividing the academic study of these links, and the practices of conservationists, managers and development professionals in the field.

With this in mind, the Task Force's model for the links between environment and security is presented, focused on security at the level of "local communities." People, particularly the poor, depend on natural resources for their livelihoods. When their resource base is affected, either by gradual degradation or depletion, or by the sudden shock of war, migration, disaster or seizure of property, they experience a loss of welfare. Their strategies for coping with the loss, whether by reducing demand, migrating, seizing other resources, innovating or trading with others, can lead to conflict or deepen vulnerability to disaster. Because of this intimate link between natural resources and people, better natural resource management means more secure communities, in terms of peace as well as protection from harm.

Following this discussion, the cases are briefly summarized and placed in context. We conclude this introduction with some observations on the particular relevance of the links between environment and security to the conservation community.

A Brief History of Inquiry into Environment and Security

Does environment cause conflict? Debate on this issue has been unfolding over the past 30 years.[12] At least since the middle of the twentieth century, researchers and policy-makers have mulled over the possible linkages between the natural environment and national security. In the 1970s, for example, important studies were undertaken on the environmental impacts of war and the preparation for war, motivated by the use of defoliants in Vietnam and by concern over the ecological effects of nuclear weapons.[13] At about the same time, responding to the creation of OPEC and the oil price shock, research was initiated on the likelihood of wars erupting over access to, and control over, vital natural resources such as oil and water.[14]

This activity was, in many ways, a modern revisiting of themes that military strategists and political scientists had been examining for centuries. In the fourth century BC, Plato had argued that resource abundance made a state an attractive target to those seeking to acquire wealth through force. Two thousand years later, philosophers such as Jean-Jacques Rousseau reflected on the ways in which climate and topography shaped threat and vulnerability around the world. The research of the 1970s simply updated some of these long-standing themes.

But this work also emerged during that period when the environmental movement, concerned about the adverse impacts of human beings on nature, was gaining critical mass and establishing itself as a global force. In this context, it is not surprising that environmentalism and security would begin to encounter each other in new and unexpected places. The members of the Brundtland Commission played an important role in this regard by moving beyond familiar geopolitical themes to argue, in their 1987 report, that if humankind did not act quickly to implement aggressive sustainable development measures, "then the deepening and widening environmental crisis [might] present a threat to national security—and even survival—that may be greater than well-armed ill-disposed neighbours."[15] Conserving the planet's natural resources and ecological integrity had, for this influential group, become a fundamental requirement for security at all levels of social organization.

This proved a timely argument as well as an innovative one. Two years after *Our Common Future* was published, the Cold War ended and an opportunity—perhaps a need—emerged throughout much of the world to think anew about threat, vulnerability and security in the post-Cold War era. Given the high profile environmental concerns had achieved by this time, and the mounting evidence that large-scale changes to the planet's climate system and biodiversity were creating conditions conducive to severe social impacts, in the 1990s the very conservative security communities of many states became interested in discussing the security implications of environmental change.

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Should the fears of *Our Common Future* be taken seriously? If so, what environmental actions had to be undertaken to prevent security disasters?

This interest was reinforced by another intellectual sentiment that became widespread in this period. While most analysts continued to worry about nuclear weapons—and how and when they might be used—a large number of them began to argue that the threat of a third world war, which had been at the very centre of security policy for decades, was much diminished. According to this analysis, the reduction of this threat was partly due to fear of the consequences of world war, and partly due to the steady expansion of trade and democracy which made the use of force increasingly unattractive to many countries. In this context, people began to suggest that what really threatened many communities and societies around the world was a set of non-military threats—aggressive new diseases, economic failures, transnational criminal cartels, terrorism and environmental change.[16] Warfare persisted, of course, and had to be addressed, but it could no longer be the only item on any security agenda.

Although most of these non-military threats appeared to be familiar problems to which societies had already found solutions, analysts argued that technology had made them far more virulent than in the past and introduced a transnational character to them.[17] They flowed across borders with few constraints, with great speed and often with anonymity. In consequence, old strategies for addressing them were almost certain to be ineffective. A new approach was required.

Moreover, researchers contended, this new approach had to be developed at once. A number of trends suggested that the emergent class of non-military threats was likely to worsen in the years ahead, at least if current practices were allowed to proceed unchecked.

The last 100 years saw a fourfold increase in human population to six billion people, with an additional three billion anticipated in the first three decades of the new century. It also witnessed the 20-fold growth in the use of fossil fuels[18] and the altering of 46 per cent of the world's primary watersheds by dams[19] to meet the needs and wants of that expanding population. This growth in resource use coincided with increasing evidence of environmental degradation[20]—the reduction of a resource's productivity—and, arguably, of competition over resource use. From declining forests and fisheries, through soil erosion and water logging, to rising freshwater and marine pollution, many of the resources people need in order to survive and flourish were, and are, in trouble.

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Worrisome trends include:

- a growing number of very poor, disenfranchised and alienated people;
- a heightened knowledge of this rising inequality, enabled by better access to information about the world;
- an accelerating flow of ideas, goods and people. Advanced communications and transportation technologies could move problems—from infectious diseases to stock market panics—from one part of the planet to another faster than ever before;
- a rise in access to arms—and possibly to weapons of mass destruction—that was due, in part, to the strategies and surpluses of the Cold War; and
- a tide of "state failures," where weak governments failed to consolidate power, provide basic services or maintain political legitimacy, and thus collapsed leaving chaos behind.

Against this daunting background, environment and security specialists found ways to collaborate on two research questions. First, could we

improve our understanding of the ways in which environmental change did or might affect the security of communities and societies, and perhaps even lead to violence and warfare? Second, could we identify courses of action that would steer the world away from such outcomes?

Attempts to answer these questions began almost as soon as the Cold War was declared dead.[21] This research abundance was due to the fact that the environmental community was, by the start of the 1990s, quite sophisticated and well-organized. It already had expended considerable effort examining the economic and moral implications of environmental change. As funds became available to study non-military security issues, those interested in environmental change acted quickly on what many saw as a logical and appropriate next step for the environmental movement.

Not every environmentalist agreed with this move, and many security specialists shared their skepticism. Some environmentalists worried that this was a Northern agenda that might provide new justifications for using force in the developing world.[22] Others were concerned that the open, cooperative and global spirit of environmentalism might be sacrificed to the more secretive and Machiavellian culture of security.[23] And some suggested that this joint venture was little more than a post Cold War grab for research dollars made possible by brandishing an image of threat that, in fact, was largely unsubstantiated and even illogical.[24] On the security side, many experts remembered environmentalists as strident critics of training, weapons development, weapons testing and combat. They wondered if this was not a clever way of trying to change the military's primary mission away from fighting and winning wars and towards such things as land management, waste reduction, reforestation and ecological restoration projects.[25]

But these concerns placed few constraints on the energy and activity of the 1990s. Researchers and practitioners on both sides concluded that it was the right time to rethink vulnerability, threat and security in a world that was rapidly changing. It was important that research, discussion and experimentation be open and inclusive, and draw upon the expertise and experience of many stakeholders. If it were proven that good conservation practices were more important tools for peace than traditional weapons, then security policy would have to be adjusted accordingly.

In a single decade this research produced a veritable cascade of papers, books, workshops and conferences in places ranging from Paris to Peshawar. While the research contains many subtle differences of interpretation, it has generated several distinctive lines of investigation that give a reasonable sense of the field's interests and accomplishments. These include:

- arguments that under certain conditions environmental stresses, such as resource scarcities, lead to or contribute to violent conflict;[26]
- counter-arguments that the above case is quite rare, and that such stress is more likely to lead to a decline in the quality of life, migration, or innovation and adaptation, including multilateral cooperation;[27]
- investigations, linked to the above two items, into the conditions under which societies are likely to adapt—or fail to adapt—to forms of environmental change;[28]
- studies of whether "greed" or "grievance" or some combination drives civil war, focusing predominantly on the incentives for violence created by trade in valuable natural resource commodities—timber, oil, diamonds and other minerals;[29]
- attempts to map areas of global vulnerability to environmental change and to develop early warning systems of environmentally-driven conflict and disaster;[30] and
- consideration of ways in which the extensive military and intelligence assets that the world created in the twentieth century might be harnessed to environmental missions.[31] For example, could the secret satellite imagery archived by the United States and the Soviet Union for 40 years help people to better understand climate change or deforestation patterns?[32]

After only 10 years, it is not surprising that the first attempts to answer these questions have provoked controversy and disagreement. It is clear that, in many cases, further research is required and that the data that supported the early research were often fragmentary and inconclusive. At the same time, this work has generated much interest among NGOs, state agencies and the public, and has produced some valuable insights and ideas.

A snapshot of the state of the research and its implications for development cooperation undertaken in 1999[33] found that the causes of conflict are multiple, complex and integrated, as a consequence of which it is difficult to isolate environmental degradation as a causal factor. Yet while the environment plays a minor role as a direct cause of conflict, resource depletion plays an important role in creating or exacerbating human insecurities, deepening ethnic divides and straining governance and dispute resolution mechanisms.

The environmental contribution to insecurity becomes increasingly relevant as the scale of analysis is shifted downwards towards the community level, and upwards beyond the state. While a careful review of evidence

shows that states are unlikely to go to war over shared water resources,[34] conflict over access to natural resources is a reality in many local communities.[35] Likewise, environmental security threats often transcend political borders and require international collective action. The 1986 nuclear meltdown at Chernobyl and its attendant devastation of neighbouring human populations and ecosystems, and the global recognition of the common threat to humanity posed by the declining ozone layer, together placed international environmental governance squarely within the domain of national security. Actions to combat environmental degradation and resource depletion can therefore provide opportunities for collaboration between peoples who might otherwise be opposed.

Noting that an analysis of the security implications of environmental change yields insights helpful for the design of development assistance, the study called for greater collaboration with experts from developing and transitional economies in research, to better reflect the realities on the ground.

In short, much work remains to be done to strengthen the environment and security knowledge base and theoretical frameworks it has produced, and to translate its insights into practical tools that can be used by decision-makers in government, development, business, security and biodiversity conservation.

The IISD/IUCN Task Force

Upon recognizing the relevance of environment and security issues to conservation and the unique contribution they can make in the field, the International Institute for Sustainable Development (IISD) and IUCN – The World Conservation Union embarked on a unique collaboration, the result of which is represented by this volume.

IISD is principally concerned with identifying and helping policy-makers resolve the political, economic and practical constraints on sustainable development, drawing on the best of both academic research and field practice.

IUCN – The World Conservation Union is a global union of governments, government agencies and non-governmental organizations dedicated to the science and practice of conservation. With 900 member institutions spread across 138 countries, and 50 years of experience in achieving conservation on the ground, IUCN is a leading reference on what works and what does not work in conserving the world's natural heritage.

In approaching environment and security, the two organizations believed they would encounter a series of compelling arguments in favour of sustainable development, and distill from the academic literature and from a new

set of case studies, useful tools and lessons for practitioners. They believed that understanding the link between conservation and social cohesion might open important new avenues for disseminating the message of sustainable development, and bring onside sectors of society that have been aloof. Critically, if investing in conservation could reduce the threat of local conflicts, it would strengthen the argument for international development cooperation, which has been in decline since the early 1990s.

In early 2000 and in collaboration with IISD, IUCN's Commission on Environmental, Economic and Social Policy (CEESP), a network of volunteer experts organized so as to provide intellectual support to the conservation movement and its practitioners, took the lead in exploring the environment and security link on behalf of the Union.

The Task Force [see the Chair's Preface] was chaired by Ambassador Mohamed Sahnoun, a distinguished diplomat and expert in international conflict resolution who has served as Special Representative of the United Nations Secretary General on conflicts in Africa. He was joined by six distinguished professionals from different parts of the world, who cut across a spectrum of expertise from academic research to field practice. This Task Force met several times in the course of the project to agree on the aims, the methodology and the criteria for case study selection; to recommend authors; and to review drafts of the case studies. The members provided invaluable guidance and expertise, and helped to generate interest in the project among policy-makers.

The results of the project were first presented at the IUCN – World Conservation Congress, which took place in Amman, Jordan, in October 2000. This workshop offered an opportunity to examine the relevance of the environment and security perspective in achieving IUCN's mission—the sustainable and equitable management of natural resources. The message of this Task Force resonated particularly well with people working in the field of conservation, for whom the link between environment and security is strongly felt. IUCN was asked to examine how environment and security might best be built into its global program and how it might assist its members and partners in targeting their conservation actions so as to enhance social stability and avoid conflict. Many of the conclusions and recommendations found in this volume result from the debate at the Amman workshop.

For its part, IISD continues to manage the CEESP Task Force—now Working Group—on Environment and Security, and is developing tools to address the range of challenges that conflict and insecurity pose for sustainable development. The collaboration between IISD and IUCN is being extended and reinforced, exploring new avenues and forging new partnerships in government, industry, academia and civil society.

The Task Force's Model – Environment, Livelihoods, Security

This book focuses on identifying the positive role that enhanced management of the environment can play in enhancing community security. In so doing, definitions are critical to analyzing and drawing out meaningful distinctions across diverse case studies.

As the meanings of both "environment" and "security" are abstract and contested, the Task Force agreed that, within the vast understanding of "environment" it would focus its research on living natural resources and essential life support systems. The term "security" is similarly broad, and may be considered at the personal level, at the level of the community, the nation and the world. It may embrace not only security from conflict, but also from the effects of such things as global warming, invasive species and disasters. For that reason, the Task Force has defined "security" as managing or preventing conflict and disaster, which are threats to communities and societies.

Conflict can be any fundamental disagreement that prevents cooperation and collaboration and causes social tension and dispute. Conflict can sometimes be a force for positive change, as it represents a dynamic state of human interaction. It can be non-violent (as in the case of broad-based civil protests), latent (repressed in a dictatorial regime) or open. It can take place at the local, regional, national and international level.

Conflict is significant for the purposes of this study, however, when its existence disrupts a community's livelihoods, undermines development or threatens its natural resource base.

Box 1A. Conflict Assessment 101: A Primer for Conservationists

What are the causes and structure of conflict?

It is problematic to disentangle the factors that escalate or deflate social tensions, since there are so many interacting variables. Conflict researchers distinguish between the underlying causes of conflict, and the triggers that turn tension into violence. These factors can be both external and internal to the area in conflict.

Underlying causes are inter-related political, social and economic factors "which create a potential climate for violent conflict without… making its eruption inevitable."[36] These include:[37]

- "*resource-based conflicts* based on competition for economic power and access to natural resources;

- *identity conflicts* based on competition between rival ethnic, religious or other communal identity groups for access to power and social justice;
- *ideological conflicts* based on competition between rival ideologies and value systems; and
- *conflicts over governance and authority* based on competition for political power and participation in political processes."

Triggering factors are "the events, actions and decisions which result in the escalation of disputes into violent conflict."[38] Among others, these might include economic shocks, changes in internal political cohesion and power distribution, influx of arms, actions of political leaders including use of identity politics, opening of borders, or large movements of people or capital.

Categorizing the nature of a particular conflict can be problematic. All conflicts fall somewhere along a continuum between all-out war and peaceful co-existence, including crisis at the edge of war, and the uneasy peace that precedes a true cessation of hostilities.[39] Even so, relations may be peaceful in some places and conflicted in others, and may jump dynamically from stage to stage rather than following a neat sequence of peace-conflict-reconciliation.[40]

The book does not explore the main concerns of the defence community, which are fundamentally oriented towards preventing and resolving international conflict and preserving state institutions. It also does not explore the positive role that can sometimes be played by the "greening" of military operations or by using security forces to protect the environment.[41]

The IISD/IUCN Task Force has focused its research on the link between environment and security through the prism of sustainable and equitable management and use of natural resources as the basis for livelihoods (See model, Figure A1 below). This focus also runs in parallel with the objectives of the Convention on Biodiversity, which commits nations to preserve biodiversity, to regulate access to biological resources and to ensure the equitable sharing of benefits from the use of these resources.[42] As will be seen in the cases presented, inequitable access or unsustainable use of resources plays a critical role in environment-related conflict, as well as in vulnerability to disaster.

Inequitable access or unsustainable use of resources plays a critical role in environment-related conflict, as well as in vulnerability to disaster.

Natural resource scarcity represents the limited availability of, or limited access to, a particular natural asset. Scarcity can represent limited quantity, quality, access or increased demand. It can be a function of environmental change, resource depletion or degradation. It can also represent relative scarcity, a situation of increasing inequality in access to a resource or the benefits its exploitation produces. Natural resource abundance, by contrast, represents a situation where there is a high concentration of valued natural resources in a particular area.

Access to natural resources is key as it underlies all livelihoods. Livelihoods are defined as the activities undertaken to translate resources—whether natural or human—into a means for living at the group or individual level, including the production of goods and services.

Coping strategies are the practices that groups and individuals adopt in the face of trends and shocks that affect the viability of their livelihoods, in order to restore their security. Practices include changing the mix of livelihoods, creating new livelihoods, seeking new sources of resources (by force of arms or otherwise) and migrating. While people could, in earlier times, turn to natural systems such as forests in times of crisis—such as after a storm or when a crop failed—today those natural resources may be owned by others or may be diminishing in quantity and quality.

In the face of a declining resource base or a sudden flood or drought, people—especially those who are poor, marginalized and most directly dependent on natural resources—may pursue coping strategies that exacerbate social tensions and increase vulnerability to disaster. It is through this mechanism that arable land, freshwater, wetlands, coastal zones and forests, each are critical to the security and stability of communities and nations.

In summary, therefore, the Task Force model traces a path from a trend or shock affecting access to a critical natural resource to a loss of livelihoods. It demonstrates how this requires the community to engage in a coping strategy which may include initiating conflict.

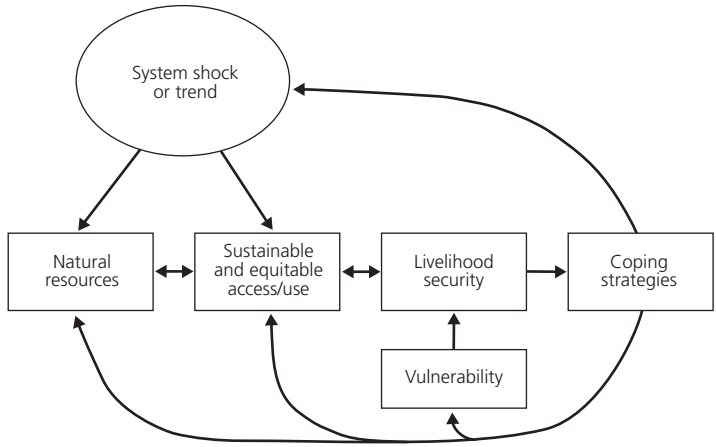
Natural Resources Sustain Communities Through Livelihoods: Livelihoods are the mechanisms through which people translate natural resources into the things they need to survive and thrive. A failure to ensure sustainable and equitable resource use, over-consumption of resources in support of particular livelihoods, or the impacts of a sudden shock such as war or disaster on natural resources or their rate of consumption, can lead to a loss of livelihoods.

The Impact of Shocks and Trends on Livelihoods Depends on Their Vulnerability: The seriousness of the shock or trend for the practice of a livelihood is related to vulnerability, which is exposure to harm, and capac-

ity to endure and recover. Low vulnerability allows a community to minimize damage to the livelihood, or to recover from the loss of the livelihood.

Communities Seek to Restore Welfare Through Coping Strategies: Livelihood loss leads to a variety of coping strategies, which may include development of new livelihoods, increased demand for productivity from the remaining livelihoods, conflict or migration in search of additional resources, or cooperation and trading with other groups. Each of these coping strategies has implications for the natural resource base and the mix of livelihoods sustaining the community.

Figure A1. Natural Resources, Livelihoods, Security and Coping Strategies



This linking of environment and security of local communities through the mechanism of livelihoods is emerging as the "missing link" between poverty, environmental degradation and conflict. As one Task Force member hypothesizes in a recent publication, it is the sudden and rapid loss of livelihoods and impoverishment stemming from inadequate access to critical natural resources that deepen the fault lines prevalent in almost all societies and mobilize angry and underemployed young men towards violent ends.[43]

Overview of the Case Studies

This book looks at eight case studies, unified by the relationships described in the model above and the overriding question: can conservation make a contribution to social stability and peace? The cases have deliberately been selected to illustrate a range of interactions, from global and regional con-

cerns to national and local ones. A majority are from the developing world, where the environment and security interactions are as yet insufficiently studied, and where the challenges and opportunities are different. But they also cover the developed world. While the cases differ in the way that they envision and present the relationship between resource management and security, they all highlight how resource mismanagement can contribute to security concerns and undermine the foundation for development and environmental action.

The book opens with a survey of the relationship between biodiversity conservation in tropical forests and war by IUCN's Senior Scientist, Jeff McNeely. Reviewing the importance of violent conflict as a means for traditional societies to adapt to change, McNeely weighs the evidence—both positive and negative—concerning the impacts of war on tropical forest biodiversity and conservation activities. He stresses that war has negative impacts, both from hunting and clearing of vegetation and from the forced migration of refugees and combatants. He notes, however, that peace without attention to conservation can create its own problems for biodiversity, particularly in the post-conflict race to generate government revenue. Citing a fear that conservation of tropical forests might one day be imposed by international military force, he concludes that enhanced resource management has a critical role to play in fostering stable and prosperous societies, and stresses the potential for international peace parks to help resolve contentious border disputes.

Peace without attention to conservation can create its own problems for biodiversity.

Following this overview are five cases exploring the theme of "nations on the edge," where the combination of weak governments and resource-related competition contributes to violence.

The chapter on Pakistan, a region of vital interest given the current political context, focuses on an area that is resource poor and whose culture can reasonably be described as a martial culture. Authors Matthew and Zaidi show how rapid population growth, the massive influx of Afghan refugees and environmental mismanagement extending to the colonial era, have led to severe forms of scarcity and degradation. Environmental stress, in turn, clearly contributes to the worsening of the civil violence that has long been endemic to the area. In a world of conflict and hardship, growing resource stress is undermining traditional livelihoods, leading to two linked results. On the one hand, there has been a remarkable turn to high added-value activities such as the arms and drug trades, and an escalation of illegal transfrontier commerce; and, on the other, unemployment and limited opportunities have created conditions ripe for the radicalization of youth who stream from their villages to towns and religious training schools

within the province. Given its proximity and its ties with Afghanistan, this has turned northwest Pakistan into a flashpoint. Averting a crisis may require a combination of environmental action and development in which communities are given a central place.

Noting that in Indonesia, illegal harvesting of timber is twice the legal cull, forestry expert Charles Barber examines how ill-considered and corrupt forest policies in this island nation have resulted in resource plunder and escalating levels of internal conflict. The author argues that Indonesia is a geographically dispersed country where the state is weak, reliance on forest resources high, and ethnic, religious, and regional cleavages are deep. The removal of the authoritarian regime that brutally suppressed these disputes, coupled with illegal logging and corruption, has made management of the forests a national security concern. Under Suharto, inequitable and exploitive forest policies were imposed, and traditional community dispute resolution mechanisms were dismantled. Forest fires in Sumatra and Kalimantan, which drew so much public attention a few years ago, are seen not as an accident or even the result of an unfortunate concurrence of circumstances, but the direct result of a series of policy failures. Indonesian society will be paying the price for these social and environmental failures for many years to come, yet the tragedy could have been avoided. The author stresses the need to restore confidence in the legal system and other mechanisms for non-violent dispute resolution, to strengthen governance at the local level and to root out corruption.

David Kaimowitz offers a different perspective on environment and security in Central America through his case study of the Bosawas reserve in Nicaragua, which has housed three separate armed anti-government movements over the last 10 years. It is becoming evident that regions like this, which combine limited government presence with high concentrations of lootable natural resources, are breeding grounds for armed insurgencies. The government's failure to address the grievances of respective interest groups led each of them to take up arms in order to consolidate control over the region's land, forest, mineral and other resources. In contrast to the other resource-based conflicts examined in this volume, these confrontations were fuelled by resource abundance rather than resource scarcity. The sketches Kaimowitz provides illustrate how people marginalized by the societies within which they live, and cut off from access to land and resources, will often resort to force to secure exclusive control over the resources to protect their livelihoods, to further economic ambitions or to finance military activities. He calls for conservationists to promote

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resource management issues as a basis for cooperation and negotiation, and to work with others in restricting illegal trade of natural resources.

It would be simplistic to suggest that resource scarcity was the cause of the genocide in Rwanda. In fact, the first major study of that hypothesis concluded just the opposite.[44] Yet with compelling detail, James Gasana examines how the cumulative effects of high population pressure, inequitable distribution and shortage of land, and resource degradation led to different types of environmental scarcities in Rwanda during the 1980s. In the context of a power struggle amongst the political elites, these scarcities became an overwhelming hardship for the rural poor and fuelled growing dissatisfaction with the state, leading to conflict in the 1990s. Gasana suggests that there is a direct correlation between those parts of Rwanda that are most environmentally degraded and those parts to which the genesis of the civil strife can be traced. "Environmental refugees" from the degraded areas moved out of their home areas, joining forces with others from similarly marginalized lands, until a flow of flood force overwhelmed the capital. While the manipulation of ethnic sentiment ultimately triggered the extremely violent confrontations of 1994, the role of environmental scarcities appears to have been very direct. Gasana's conclusion is that only by ending the winner-takes-all approach to resource control in the region will security for all be attained.

Inequitable distribution and access to land resources also undermine human and environmental security in Matabeleland, Zimbabwe. As Katerere and Hill point out, many of the structural roots of the current strife over land in Zimbabwe have their origins in colonialism, as British land distribution and forest conservation policies evicted many people from their traditional lands. In this arid region of Zimbabwe, the indigenous people are particularly dependent on forests for their livelihoods and as a safety net in times of crisis. With a majority of its people forced onto the worst land, inhabitants in Matabeleland have had to overexploit their resource base, degrading and ultimately undermining their livelihoods and spawning further conflicts. Indeed, the authors allege that disputes over access to land led to the liberation struggle and ultimately to an independent Zimbabwe. Because they are unresolved, these land disputes continue to simmer, and at times boil over, today.

Turning our attention away from issues of violent conflict, Girot provides a regional overview of the role of environmental degradation in compounding disaster vulnerability. He uses examples from Hurricane Mitch in Central America to illustrate how the processes of deforestation, biodiversity loss, and land degradation can compromise, and in some cases strip, the buffering capacity of social and ecological systems. Similar to the other cases in this volume, inequitable distribution of land and income are held

largely responsible for the livelihood insecurity that fuels environmental mismanagement, driving poor people to settle in marginal locations and to undermine their own basis for survival. Moreover, this case study illustrates the complex, and oftentimes cyclical nature of some of the linkages between environment and security, as degradation leads to heightened disaster vulnerability and impacts, which further intensify insecurities. It offers a compelling case for the positive knock-on effects that might be expected from investments in environmental management and into institutions for cooperation at the local level. Strikingly, one of the themes of this case study is the apparent scarcity of quantitative analysis on the linkages between resource mismanagement and vulnerability to disaster. This may be an environmental service that has been critically undervalued in resource management decisions.

Are environmental conflicts a potential problem for the rich countries of the North? DeSombre and Barkin examine a dispute that led momentarily to a result so extreme that few would have thought it possible—two OECD countries in armed battle with each other in the waning years of the twentieth century. And the brief military skirmish (Canadians shooting warning rounds across the bows of a Spanish fishing vessel) was a direct result of the social tensions resulting from the massive failure to manage the North Atlantic fishery sustainably. This case, despite its *opera buffo* qualities, offers a sharp contrast to the other cases presented here. It involves two rich, industrialized countries engaged in a conflict over a resource of marginal economic value, the management of which was governed by an existing multilateral environmental agreement. Driven by broader national interests, namely national pride couched in the pursuit of environmental protection, it is argued that the degeneration of the misunderstanding into conflict—however limited—ultimately provided the incentive to move to a higher level of protection for the resource. It leads to an important question: What are the circumstances whereby resource-based conflicts can be harnessed to produce quantum improvement in the institutions for environmental management?

The book concludes with a cross-cutting analysis of what it takes to make conservation work in times of conflict, based on a multi-year research effort designed to distill the lessons learned in the field. Judy Oglethorpe and her colleagues at the Biodiversity Support Program provide a series of recommendations for conservationists in planning and continuing their activities during conflict and in immediate post-conflict situations. Reviewing the impacts of conflict on biodiversity conservation, they stress that while some impacts are unavoidable, there are many actions that can be taken before, during and after armed conflict to lessen their consequences. Based on their analysis, they stress that modest and strategic investments can make a big difference for the environment and for longer-

term social stability. They call on conservationists and donors to become better attuned to social and political context and trends, and to plan for contingencies. During conflict, they stress the importance of judicious planning so as to minimize risk to personnel. Even should it prove unsafe to continue operations on the ground, conservation capacity and model policy could and should be built amongst nationals exiled from their country, to prepare for the return of peace. Indeed, the immediate aftermath of conflict represents an exceptional window of opportunity to integrate conservation into post-conflict development planning, and for innovative ideas to be introduced into national policy. As the entire world turns its attention to rebuilding Afghanistan, after 23 years of severe environmental and social destruction, the insights of this case study may assume a special significance.

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Conservation In War And Peace

Before letting the cases speak for themselves, we felt it important to clarify why the linkages between environment and security are of particular relevance to conservationists, and why the conservation perspective might enrich this field of inquiry.

First, human settlements and economic activities are increasingly pushing at ecological limits and frontiers. The world's remaining untouched pools of natural resources are often located in politically unstable yet biodiversity-rich areas, where property rights are undefined, unenforced or contested.[45] Development may require entry into relatively undisturbed ecosystems, pitting modernity on a collision course with traditional and subsistence communities and often resulting in conflict. Protecting these biodiversity-rich "hot spots" and the communities within them is a key goal of the conservation movement.

Second, war undermines conservation efforts, as meeting immediate survival needs take precedence over consideration of managing resources for the long term. Protected areas are among the first victims of conflicts. In 1994 during the Rwanda conflict, for example, IUCN's Senior Scientist estimates that the Virunga National Park in Zaire lost 300 sq km of forested area because up to 40,000 people entered each day searching for food and firewood.[46] According to one source, at least 80 of Virunga's park staff have been killed in battles with insurgents since 1996.[47]

Conflict is a reality in many of the world's most biodiversity-rich regions. As a result, conservationists are finding themselves increasingly called upon—

or taking the initiative—to operate in tense and even violent situations. They may at times be working in areas that slip into conflict, and they may be called upon to participate in post-conflict assessments and rebuilding, especially whenever the international community is directly involved. In all of these situations, some understanding of the links among environment, conflict and security will be valuable. Awareness of what has been tried in different parts of the world, and of the major insights of the academic literature, may help in establishing priorities and avoiding pitfalls.

Third, the concepts and language surrounding the links between environment and security have proven to have considerable strategic value in bringing parties together and in accessing new sources of funding for the sustainable development movement. "Environment and security" provides a framework that allows different stakeholders in an area to meet and hold mutually beneficial discussions around issues of common concern: peaceful communities, safe water, and preservation of key forest areas and wildlife. Especially in the developing world, these efforts are facilitated when local and state defence and enforcement agencies are supportive of them.

The notion that improved natural resource management can help build stability and reduce conflict at a relatively low cost makes conservation appealing to a new—and vitally important—constituency, those charged with securing the peace. In doing so, it also has the potential to increase the attractiveness of conservation proposals to funding sources. As conservation gains more recognition as a peace-building tool, and even as one of the first steps towards building a society that is stable and hence appealing to investors, it becomes a necessary, as opposed to negotiable, part of any development strategy.

Fourth, at the local community level, some research suggests that security is a priority whereas conservation of natural spaces is perceived as a luxury. Experience with small communities in remote regions, such as northern Pakistan, suggests that the concept of environment and security is attractive and resonant at this level, and thus helps deepen appreciation of conservation proposals as essential to survival and development. Identifying natural resources and services critical to the survival and safety of a community can help conservationists prioritize investments in natural resource management so as to maximize their social value. The sustainable development agenda is a broad one; understanding the links between environment and security might help us identify what to do first.

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Finally, linking environment and security offers a positive response to those whose vision for our future is bleak and forbidding. This apocalyptic view of tomorrow is one where shortages of food, water and energy create the conditions for global breakdown—a planet-wide anarchy of violence and misery surrounding tiny islands of affluence.

While many analysts assign a low probability to this alarming neo-Malthusian prediction, and others openly ridicule and condemn it, it has become a useful boundary marker for policy-makers. The message it offers is clear and compelling, if extreme: societies that fail to conserve today, may fail tomorrow.

Understanding the environmental basis of security expands the utility of this concern by examining how development and environmental degradation affect social stability. It suggests a range of social outcomes from environmental change. These may include innovation and cooperation, as well as conflict and collapse. Understanding the relationship between environment and security proposes tools for promoting the former and preventing the latter. The choice is not between all or nothing; it is between better or worse.

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