Official Statements and Documents

Below are excerpts from recent official statements in which environmental issues are cited in the context of security institutions and national interests. The Wilson Center encourages readers to inform the ECSP Report *of other related public statements.*

Statements by William J. Clinton
President of the United States

Excerpts from President Clinton's remarks to the United Nations Special Session on Environment and Development, The United Nations, New York
26 June 1997

. . . In our era, the environment has moved to the top of the international agenda… Preserving the resources we share is crucial not only for the quality of our individual environments and health, but also to maintain stability and peace within nations and among them.

. . . Here in the United States, we must do better. With 4 percent of the world's population, we already produce more than 20 percent of its greenhouse gases. Frankly, our record since Rio is not sufficient.

. . . The air quality action I took yesterday is a positive first step, but more must follow. In order to reduce greenhouse gases and grow the economy, we must invest more in the technologies of the future.

. . . We must create new technologies and development new strategies like emissions trading that will both curtail pollution and support continued economic growth. We owe that in the developed world to ourselves and, equally, to those in the developing nations.

... Many of the technologies that will help us to meet the new air quality standards can also help us to address climate change.

Excerpts from President Clinton's remarks at the Discussion on Climate Change, The White House
24 July 1997

. . .As the Vice President said, the overwhelming balance of evidence and scientific opinion is that it is no longer a theory, but now a fact that global warming is for real.

. . . If we fail to act, scientists expect that our seas will rise one to three feet, and thousands of square miles here in the United States, in Florida, Louisiana and other coastal areas will be flooded. Infectious diseases will spread to new regions. Severe heat waves will claim lives. Agriculture will suffer. Severe droughts and floods will be more common. These are the things that are reasonably predictable.

. . . I do want to say that I am convinced that when the nations of the world meet in Kyoto, Japan, in December on this issue, the United States has got to be committed to realistic and binding limits on our emissions of greenhouse gases.

Excerpts from President Clinton's State of the Union Address
27 January 1998

Our communities are only as healthy as the air our children breathe, the water they drink, the Earth they will inherit. Last year we put in place the toughest-ever controls on smog and soot. We moved to protect Yellowstone, the Everglades, Lake Tahoe. We expanded every community's right to know about toxics that threaten their children.

...Just yesterday, our food safety plan took effect, using new science to protect consumers from dangers like *e. coli* and salmonella.

...Tonight, I ask you to join me in launching a new Clean Water initiative, a far-reaching effort to clean our rivers, our lakes and our coastal waters for our children.

...Our overriding environmental challenge tonight is the worldwide problem of climate change, global warming, the gathering crisis that requires worldwide action. The vast majority of scientists have concluded unequivocally that if we don't reduce the emission of greenhouse gases at some point in the next century, we'll disrupt our climate and put our children and grandchildren at risk.

This past December, America led the world to reach a historic agreement committing our nation to reduce greenhouse gas emissions through market forces, new technologies, energy efficiency.

We have it in our power to act right here, right now. I propose $6 billion in tax cuts, in research and development, to encourage innovation, renewable energy, fuel-efficient cars, energy-efficient homes. Every time we have acted to heal our environment, pessimists have told us it would hurt the economy. Well, today our economy is the strongest in a generation, and our environment is the cleanest in a generation. We have always found a way to clean the environment and grow the economy at the same time. And when it comes to global warming, we'll do it again.

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Statements by Albert Gore, Jr.
Vice President of the United States

Excerpts from Vice President Gore's remarks at the Many Glacier Hotel, Glacier National Park, MT
September 2, 1997

. . . If we stay on our present course, scientists predict that average global temperatures will rise by 2 to 6 degrees Fahrenheit in the next century....That's why, if we fail to act, scientists believe the human impact of global warming will be severe:

Infectious diseases could spread, affecting families and children in regions that had been too cold for tropical viruses to survive. Farmers and rural communities could be in jeopardy, since farms depend on a stable climate to be productive. Back in 1988, when we faced both record temperatures and droughts, the United States lost a third of its grain supply. We could face greater floods, droughts, and heat waves.

. . . Our seas could rise by one to three feet, flooding thousands of miles of Florida, Louisiana, and other coastal areas. . . . My purpose today is not to be alarmist . . . But its time to face the facts: Global warming is real. We helped to cause it—and by taking reasonable, common-sense steps, we can help to reduce it. . .

. . . But we know that American efforts alone will never be good enough. Any real solution to global warming must be an international solution—including developing nations as well as industrialized ones.

This December, when the nations of the world meet in Kyoto, Japan, on this issue, the United States will work to achieve realistic, binding limits on the emissions of greenhouse gases.

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Statements by Madeleine K. Albright
Secretary of State

Excerpts from Secretary of State Albright's remarks at Saint Michael's College, Colchester, Vermont
7 April 1998

If we are to build the kind of future we want, we must also safeguard our environment. As Vermonters know all too well, acid rain, greenhouse gas emissions, radiation and sewage don't read maps, respect borders or even stop for customs. To preserve the health of any part of the globe, we must protect the entire globe.

Unfortunately, there are times when preserving a healthy world environment seems like mission impossible. We hear so often that the science is not certain enough, that population growth rates will not slow enough, that people don't care enough. And some still say that environmental protection is a soft issue, which can safely be dealt with another day, or better yet, by another generation. I say environment is a security issue and that unless we wish to betray our own children, we must act seriously and on all fronts to deal with it now.

Moreover, here in New England, where trees grow tall, water runs clear, and moose still wander in downtown Burlington, there is abundant evidence that bold action on the environment can yield dramatic results at an acceptable cost. After all, it has been less than 30 years since a Democratic Congress and a Republican President got together to override a determined opposition and enact the Clean Air and Clean Water Acts and create the EPA. Since then, we have returned a host of lakes to health and human use, substantially reduced air pollution, and proved that what some called a wasteful expense is truly a pragmatic investment in

America's prosperity and good health.

Today that same bipartisan spirit is needed to forge a worldwide strategy to combat global climate change. The Clinton Administration is committed to doing its part at home by using the force of the market and the power of American innovation to cut our emissions and keep our economy growing. And we are determined to lead in developing a global action plan based on sound science and sensible cooperation—a plan that makes sure that all nations play a part and in which innovation and initiative are rewarded.

Each of these efforts will contribute to a more secure, just and livable world.

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Statements by Timothy E. Wirth
Under Secretary of State for Global Affairs

Excerpts from Under Secretary Wirth's remarks at the Western Hemisphere Defense Environmental Conference, sponsored by the United States Southern Command and Office of the Deputy Under Secretary of Defense for Environmental Security, Miami, Florida 3 June 1997

. . . Consider these basic facts. Five biological systems—croplands, forests, grasslands, oceans and fresh waterways—support the economy of this hemisphere and indeed the entire world. Except for fossil fuels and minerals, they supply all the raw materials for industry; and provide all the food. In other words, virtually all economic activity is dependent in some way on the natural environment and its underlying resource base. Thus, when that environment is polluted or degraded or otherwise diminished, our economic capacity is reduced as well.

. . . Moreover, our population is increasingly urban, and cities—especially large cities—present particularly intractable environmental difficulties. On a bad day in Los Angeles or Mexico City or Santiago, the air itself becomes a direct threat to human health. The children that are growing up in such a polluted atmosphere run the risk of life-long mental and physical impairments.

. . . Before I close, I would also like to call attention to one idea, a suggestion whereby sound environmental policy might be used as a component of conflict prevention. The idea is the creation of international parks along difficult or controversial borders. Recently, the governments of Colombia and Panama suggested establishing a series of nature parks along their common border, as a way to reduce tension there.
. . . There is already at least one outstanding example of using a park as a way to help solve a difficult and long-standing border dispute. I am thinking of the Chamizal National Memorial, which the United States and Mexico established in 1963 as a key part of the agreement that resolved a hundred-year old border dispute along the Rio Grande. Today, the Chamizal park—located between El Paso and Ciudad Juarez—provides more than just a location for chamiza and carrizo and other riparian vegetation to grow; it also provides a venue for cultural ties and bonds to flourish....

Excerpts from Under Secretary Wirth's remarks before the Independent World Commission on the Oceans, Providence, Rhode Island
June 6, 1997

. . . [W]hile the oceans were once thought to be a remarkably inexhaustible and resilient resource, they are starting to show real signs of stress. The productive and regenerative capacity of the oceans are increasingly threatened by the introduction of pollutants, over-utilization of marine resources, habitat destruction and coastal development.

. . . The Law of the Sea Convention, now ratified by 116 governments, is one of the most ambitious and complex treaties ever put into force. The product of 25 years of negotiations, it is a remarkably comprehensive, fair and progressive agreement, establishing a balanced and dynamic legal framework for all aspects of ocean management. It provides the legal certainty necessary for the development of ocean industries; it establishes sound conservation guidelines to safeguard the future of the marine ecosystem; and through its dispute settlement provisions, the Convention provides mechanisms to ensure compliance. . . .

Excerpts from Under Secretary Wirth's remarks before the Subcommittee on Energy and Power Committee on Commerce, U.S. House of Representatives
15 July 1997

. . . [T]he path we are on is cause for significant concern. Climate change is likely to have wide-ranging and mostly adverse effects on human health. Both natural and managed ecosystems are at risk. The viability and location of forest and agricultural zones will change significantly.

Moreover, virtually all the studies on the effects of climate disruption have focused on predicted doubling

of atmospheric concentrations of greenhouse gases. But unless significant actions are taken early in the next century, it is very likely that atmospheric concentrations will, by the year 2100, nearly triple the pre-industrial level and rise higher than any point in the last 50 million years. Changes to our climate system would also continue beyond the effects that the current studies predict; the risks would increase dramatically as concentrations continue to rise. Moreover, there is no reason to believe that these additional effects would be linear; they would most likely take unpredictable and highly undesirable paths.

. . . So action by industrialized nations alone will not put us on the road to safe concentrations of greenhouse gases; we need action by the developing countries as well. But it is very clear from all our discussions and negotiations to date that if the developed countries, with our current economic capacity, technical capability, and energy intensive life-style, don't go first—setting the example and reducing emissions—then developing countries will not act either. We must lead the way. . . .

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Statements by Carol Browner
Administrator, Environmental Protection Agency

Excerpts from Administrator Browner's remarks at the Environmental Business Council of New England, Boston, Massachusetts
October 3, 1997

. . . We still have major environmental and public health challenges ahead of us. And what makes them more difficult is the fact that, in many cases, they are not as obvious to the majority of Americans. But they are very real, nonetheless.

. . . We have taken measures to improve our air quality—setting stronger public health air quality standards for the first time in two decades—standards that will prevent thousands of premature deaths each year, and improve health protections for people of all ages.

We have enacted new laws to protect our drinking water and our food from dangerous contaminants.

. . . This new generation of environmental protection means something else, too. It means what the President has said, on many occasions, and what has proven to be true: that environmental protection and economic progress do go hand-in-hand.

You know that addressing the challenge of global warming is not about ratcheting down our economy. . . . Rather, it is about investing in new technologies that make our industries more efficient, more profitable—and cleaner in the process.

. . . I'm talking about more efficient motor systems in factory equipment, advanced turbine systems, computer workstations and household appliances that use less electricity— and thus reduce global warming emissions—all through available technologies.

According to the National Academy of Sciences, we can cut global warming pollution by one-fifth—right now, at no cost—simply by using technologies that are already on the market.

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Statements from Richard Lugar
Senator (R. - Ind.)

Excerpts from Senator Lugar's Remarks at the Senate Agriculture Committee Hearing on Global Warming
March 5, 1998

...In preparation for Kyoto, the Senate passed the Hagel-Byrd resolution in July, urging the President not to sign any treaty which failed to include emissions limitations on developing countries. However, the United States signed the Kyoto Protocol, with administration officials conceding that it does not include "meaningful participation" by the "key developing countries." China and other developing countries have reportedly expressed adamant opposition to limit even their rates of growth in greenhouse gas emissions.

The national debate over the Protocol may force this nation to overcome its tendency to separate energy and environmental policies. In reality, many of our environmental problems are related to our need for energy. Changes in energy policy are essential to addressing environmental concerns.

Events beyond our borders also have tremendous impact on American energy security and environmental interests....

...To address these many issues, I believe that the President should establish an interagency Energy and Environmental Security Task Force. Such a task force should include the National Security Council, the Council of Economic Advisors and high level representatives of pertinent agencies such as USDA, Energy, Transportation and the Treasury. We cannot cope with any of our pending environmental or energy security problems without a new energy policy.

We must also address the serious threat of worldwide deforestation. Experts indicate that about 20 percent of the increase in greenhouse gas concentrations is due to the elimination of carbon sinks in our soils and forests. We are losing 30 million acres of tropical forests per year. Yet the Kyoto Protocol may not allow the United States to count projects which we fund in developing nations to avoid deforestation and promote sustainable agriculture as part of our contribution to addressing the climate change problem.

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Statements by John Gannon
Chairman of the National Intelligence Council

Excerpts from remarks by John Gannon to the Washington International Corporate Circle
31 October 1997

...We think it is critical that policymakers think beyond the crises of the day and consider some of the evolutionary trends that will shape our future, both from a national security and an economic perspective....

First, population will increase by 1.2 billion to over seven billion by 2010. About 95 percent of this growth will be in developing countries. This growth will be accompanied by increased urbanization: about half of the world's population will live in cities compared with one third today. . . .Countries such as Mexico and Saudi Arabia that hold key geopolitical positions will be among those heavily affected by population pressures. In some societies a "youth bulge"—the growing number of people between 15 and 24—will strain educational systems, infrastructure, and the job market.

. . . For the industrialized world, the population problem will not be associated with growth but with increasing life spans and decreasing birth rates. The "Social Security-Medicare" debate already reverberating throughout the developed world will become even more acute. Governments will struggle to provide social welfare and health services to an aging population, while the labor force—the pool whose taxes help finance these services—shrinks.

In the Former Soviet Union the issue is not buttressing a safety net, but creating one to cope with a wide range of economic and social problems, the solutions to which will take many years of concerted effort in health, environmental, and economic policies. The extent of Russia's demographic ills is reflected in a sharp and unprecedented decline in male life expectancy.

Second, the NIC study points to a growth in per capita income....

...Growth will increase demands on infrastructure—such as water, energy, communications, waste disposal, urban transportation, public health, housing, and education. Failure to accommodate these demands will trigger disaffection with government, emotional backlashes against modernization, and clashes against Western policies, philosophies, and presence.

The third trend will be the problem of feeding a burgeoning population. . . . [F]ood production is likely to keep pace with overall demand. The authors anticipate genetic engineering fueling a fourth agricultural revolution by the end of this time span. As in the past, shortages will be man-made. Serious pockets of poverty will put people in developing countries—particularly in Africa—at risk of death from disease and starvation.

. . . The fifth trend is that growing populations and per capita income will drive the demand for more energy, particularly as the Chinese and Indian economies expand. By 2010 the world will require added production of petroleum on the order of what OPEC produces now. Technological advances, however, can meet this demand. Problems will arise not out of overall shortages but out of short term disruptions in the flow of oil stemming from political-military instabilities. ...

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Statements by Javier Solana
Secretary General of NATO

Excerpts from Secretary General Solana's remarks at the International Conference on "The Future of NATO's Mediterranean Initiative" Rome
10 November 1997

…[W]e should consider the importance of the Mediterranean region to the rest of Europe from the viewpoint of trade, investment, maritime transport, natural resources, environmental interdependence, patterns of human migration, and so forth. Taken on this broader socio-economic level, we get a better picture of the growing ties between the Euro-Atlantic area and the Mediterranean basin.

What gives further coherence to this approach are certain facts, starting with the obvious geographic proximity of the southern and eastern Mediterranean littoral to continental Europe. There is also population growth. The North African population, for example, is growing at an approximate rate of 2.5 percent annually, and is expected to increase from 63 million in 1990 to perhaps 142 million by 2025. This large increase of population will put an enormous burden on the cities

of the area, where housing, sanitation, employment, and food distribution are already under serious strain.

Consider another aspect—that of human migration. There are about six million immigrants from the Maghreb residing in the European Union, distributed mainly in France, Italy and Spain. Such large inflows are another factor in the equation that ties together the stability of countries on the northern and southern shores of the Mediterranean....

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Statements by Nafis Sadik
Executive Director
United Nations Population Fund

Excerpts from Dr. Sadik's remarks to the East Asia and Pacific Regional Conference of the Society for International Development, Tokyo, Japan
1 April 1997

...The challenge before us as we mark the fifth anniversary of Agenda 21 remains as it was in 1992: to balance population growth with resources for development, attack poverty and secure women's equality. In the intervening five years however, we have reached international consensus on many issues which were unresolved at the time of Rio. Among them are the relationships among population, gender and the environment.

The International Conference on Population and Development in 1994 agreed that population issues are central to the search for sustainability. ICPD and the Fourth World Conference on Women agreed that gender equity and equality are part of the corpus of internationally-accepted human rights: as such they are essential outcomes of sustainable development policies; but they are also central to the solution of population problems, and to environmental integrity.

...The world's population now stands at nearly 5.85 billion and will grow by 81 million a year during this decade. We added one billion people to the planet in the last 11 years.

...Population, resources and environmental issues are linked in complex ways and at different levels of development. For example, most environmental damage is done by the so-called "top billion" richest people. Industrialized countries contribute to environmental degradation through higher per capita resource consumption and large-scale use of polluting technologies; the per capita energy use of the United States is 18 times that of Bangladesh. At the same time the industrializing countries of Asia and Latin America are rapidly increasing their contribution to environmental stress.

At the other end of the scale, deepening poverty, especially in the least developed countries and in rural areas of the developing world, may combine with population growth to produce another set of resource and environmental constraints.

The "bottom billion", the world's poorest people, have few options. Population growth and uneven population distribution can overwhelm traditional sustainable land use practices; and for the poor there are no alternatives. The poor are not responsible for their poverty, or ultimately for the environmental damage it causes. Where most land is in large holdings, the poor may be forced into artificially small or marginal areas. Poverty prevents the adoption of new technologies to halt or slow down environmental degradation. Misdirected development policies have not reached the poor or have actually made them poorer. The cumulative environmental impact of this "bottom billion" is substantial and growing as their numbers grow.

Excerpts from Dr. Nafis Sadik's remarks to the Center for International and Area Studies, Yale University, New Haven, CT
17 April 1997

More than 1.2 billion people–one fifth of humanity–live in South Asia (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). There are wide variations in birth and death rates within the sub-region, the average annual population growth rate is over 1.8 per cent. These eight countries contribute more to the growth of the world's population than any other subregion.

As a result of past rapid population growth, combined with persistent poverty and the generally low status of women, these countries have been sorely challenged in efforts to improve their people's quality of life. Half a billion South Asians, nearly half of the world's poor, live in extreme poverty. This widespread poverty and rapid population growth, along with persistent social and gender inequities, are part of a vicious cycle which is closely linked to prospects for sustainable development. It must be broken by explicitly integrating population into economic and development strategies; otherwise, the cycle will continue, contributing to environmental degradation and resource depletion.

This widespread poverty and rapid population growth, along with persistent social and gender inequities, are part of a vicious cycle which is closely linked to pros-

pects for sustainable development. It must be broken by explicitly integrating population into economic and development strategies; otherwise, the cycle will continue, contributing to environmental degradation and resource depletion.

...Empowering women through education and better health care, and moving towards gender equality and equity in law and practice will be the basis for improving the quality of life and alleviating poverty elsewhere in the subregion. I am glad to say that I see signs in the last few years at all levels that the process is taking firm hold in South Asia.

The key can be found in the consensus agreements forged at a series of global meetings in this decade–particularly the 1994 International Conference on Population and Development in Cairo and the Fourth World Conference on Women in Beijing a year later. These spell out a human-centred approach to development which focuses on meeting people's needs for education and health care, empowering women and achieving gender equality and equity.

...This approach to population and social development has been accepted by all governments in the region as part of the global consensus. The evidence is that they are taking it seriously. Each country in South Asia must define its policies and programmes based on national priorities and particularities. But as Cairo and the other conferences emphasized, any effective strategy will require development partnerships involving government, civil society and the private sector. And considerable resources will have to be mobilized, from both domestic sources and international development assistance.

...As the Cairo conference emphasized, poverty and social and gender inequity influence and are influenced by population growth, structure and distribution. Efforts to slow population growth, reduce poverty, achieve economic progress, protect the environment, and reduce unsustainable consumption and production patterns are mutually reinforcing. Investments in social infrastructure basic education, sanitation, drinking water, housing, food supply and health care, including reproductive health and family planning will speed up sustainable development and poverty alleviation, and help to achieve population objectives and improve people's quality of life.

New Publications

Conflict and the Environment
by Nils Petter Gleditsch (editor)
Dordrecht: Kluwer Academic Publishers, 1997

Reviewed by Simon Dalby

This book is, so far, the most comprehensive single publication in the area of environmental security. At six hundred pages it is also clearly far the largest book yet to be published in the field. Its thirty five chapters arranged in six substantial sections present the proceedings of the NATO Advanced Research Workshop on Conflict and the Environment held in Bolkesjø Norway in June 1996.

A conceptual section on environmental security follows a stand alone introductory chapter by Sverre Stub which contextualises matters in terms of the need for sustainable development and the necessity of understanding the environment as a common human interest. The editor has taken the unusual step, and in this case clearly excellent decision, to publish critical voices first in this volume. These provide a number of templates against which the reader can evaluate the later chapters (making the admittedly rather large assumption that the chapters are read sequentially in such a large volume.)

The first three chapters in the theoretical section on the concept of environmental security, by Lothar Brock, Ronnie Lipschutz and Antonio Hill present different but critical voices that alert the reader to many of the difficulties in thinking about conflict, environment and security. Lothar Brock points to the dangers of securitizing the concept of environment, Ronnie Lipschutz to the difficulties if the environment is presented as a deterministic cause of insecurity or conflict, and Antonio Hill to the important conceptual assumptions about values that often get lost in discussions of both analytical frameworks and policy options.

Following these cautionary notes Richard Matthew suggests some careful conceptual clarifications that might produce more useful interchanges among environmentalists, security analysts and practitioners than have so far taken place. The editor's own contribution rounds out the conceptual section by linking the environmental security discussions to the literature on the democratic peace. He makes the case that because democracies do not fight each other and usually have fairly good environmental records, then the possibilities for both peace and environmental progress are linked; although in doing so he strangely omits detailed discussion of the importance of resource extractions and flows in the processes of environmental degradation in non-democratic states.

The second section of this volume presents seven case studies under the title of environmental degradation. (Additional papers from the workshop on the topic of environmental degradation and its links with armed conflict, are published separately in a special issue of the *Journal of Peace Research* in May 1998.) Alexander Varshavsky and Leonid Varshavsky use a mathematical model to suggest, among other things, that Samuel Huntington's ideas of clashing civilizations are not very useful to understanding global instability. Mats Hammarström examines the period from the early 1950s to the mid 1970s suggesting that during this period major power military interventions were not related to access to strategic minerals. His analysis provides further evidence that assumptions about future resource shortages leading to wars is at best highly questionable.

Nadir Mohammed's chapter succinctly summarizes the relations between poverty, economic deterioration, environmental degradation and conflict in what he calls the 'development trap' in Africa. Given the difficulty achieving poverty reduction and the resources wasted in militarization, he suggests starting with confidence-building and demilitarization. Mohammed hopes that generally improved security and the possibility of using resources freed from military to tackle poverty and environmental destruction might provide a way out of the interconnected societal crises of Africa. Robert Stranks tackles the question of China and the possibility of environmental degradation leading to armed conflict as its economic and demographic changes impact on a restricted resource base. While migration is important, it is not induced by environmental stress, and he concludes that in the short run environmentally-induced conflict is unlikely because the social and political requirements are absent despite severe environmental stress.

Alexander Kaffka's survey of the legacy of Soviet environmental despoilation optimistically concludes that, despite numerous difficulties and slow progress, the era of complete environmental neglect is now over at least as far as Russia is concerned. The following chapter by Anton Ivanov offers a fascinating and innovative account of the possibilities of ethnic environmental ethics as a way to both reduce conflict over environmental matters in third world states and between modernizers and indigenous peoples. Using the Yakutian people and

the post-communist experience in Siberia, Ivanov engages the Western academic literature on environmentalism and environmental ethics and suggests that indigenous understandings of environment and resources may provide much better ways of diffusing conflicts over development than technocratic managerial models. The final short chapter in this section suggests a much more pessimistic outlook for Russia's north in the region of Arkhangels'k. However, the focus on the inadequacies of technocratic concern in the region might suggest that here too, Ivanov's analysis might offer alternative ways of grappling with the problems of environmental destruction given the short term exigencies of difficult economic times.

The third section has two chapters on fisheries, one by Jennifer Bailey on the question of high seas fisheries stocks and the extension of state sovereignty. She argues, contrary to the usual assumptions that UN agreements and international management will promote peaceful cooperation, that the complexity of the issues and the demands of numerous groups may in many cases precipitate conflict as fish extraction increasingly becomes a zero sum competition between many actors. Marvin Soroos' analysis of the 1995 Turbot war between Spain and Canada over fish caught just outside the 200 nautical mile limit off Canada's coast suggests that such conflicts are perhaps inevitable, but can, as happened in this case, spur on the further development of international agreements and the better management of endangered stocks.

Three chapters on environmental refugees constitute the fourth section of this volume. In a partial reprise of some of Strank's arguments on China, Astri Suhrke argues that the security paradigm usually confuses the issues relating to migration and especially the role of environmental factors in setting people in motion. The chapter argues for an understanding of the complexity of the causes of migration, a clear focus on the specific socio-economic context of the migration destination area, and the role of the state in facilitating economic integration of the migrants. These factors usually provide contextually appropriate explanations that refute the simple assumptions that migrants cause conflicts. Shin-wha Lee argues that despite the numerous definitional difficulties with the concept, there is good reason, on humanitarian grounds, for taking environmentally displaced people seriously as the political and moral equivalent to traditional political refugees. Evan Vlachos extends these arguments by compiling a typology of causes of environmental refugees and concluding that the problems of forced relocation are tied into the many humanitarian crises that currently afflict the planet. Once again these chapters suggest that environmental security is not a matter that can be seriously discussed without addressing the complexity of the contemporary human condition in its specific contexts.

The largest section in this collection is not surprisingly, given the amount of attention recently paid to matters of 'hydropolitics,' on the question of water conflicts. Nearly a quarter of the volume, and nine chapters, address the multiple issues in this field from a variety of disciplinary backgrounds. Francisco Correia and Joaquim de Silva tackle transboundary issues in water resources focusing on the European Union and the international legal frameworks of water management. They suggest extending international river management commissions and taking special account of extraordinary events such as floods and industrial accidents leading to river contamination. Ramón Llamas narrows these concerns to focus specifically on the Iberian peninsula where numerous conflicts about water have been peacefully resolved over the last century.

Three chapters, by Peter Beaumont, Steve Lonergan and Stephan Libiszewski tackle water issues in the Middle East. Beaumont argues that water wars are unlikely in the region as water scarcities arise when extensive use of low cost irrigation water is involved. Given the possibility of trading for food, water scarcity can be avoided through fairly easy substitution. And it is unlikely that war will result when water is used for more pressing concerns and food imported. Lonergan extends this argument suggesting that inequities in water distribution are a problem in the relations between Israel and Palestine but that there is little evidence that water has been a cause of warfare in the region. Libiszewski analyses the 1994 peace treaty between Jordan and Israel and suggests that the technical negotiations about water management have provided a useful diplomatic complement to the formal political negotiations. Such a model might offer opportunities for political progress on disputes elsewhere, as Ashok Swain writes about in his chapter, on sharing water in the case of rivers that cross national frontiers. Swain's analysis emphasizes that while there is alarm about water as the potential cause of conflict, in many cases shared rivers have stimulated cross-boundary cooperation.

The final three 'hydropolitics' chapters tackle water issues in the former Soviet Union; Stefan Klötzi analyzes the 'Aral Sea syndrome,' as he terms the complex of institutional, political, economic and environmental circumstances of the 'ecoregion' involved in the destruction of the sea. The importance of irrigation to agriculture, and the inadequacy of the remnant Soviet institutions to deal with water allocations between the new republics, suggest that conflicts are likely and that new institutions and cooperative arrangements will be needed before many of the problems of the region can be tackled. Klötzi concludes that outside help is badly needed. Some help from international agencies, however limited, is likely to be better than none. The difficult legacy of ineffective institutions is also important in Alexandr Spirin, Olga Turevskaya and Sergey

Turevskiy's examination of the challenge presented by the industrial pollution of the Severesky Donets River area in the Ukraine, and in Lidya Svirenko and Alexandr Spirin's analysis of the ecological consequences of the inappropriate use of irrigation, the water logging of rich soils and the destruction of traditional wetlands in the Ukraine.

The sixth and final substantive section deals with social and political responses to the environmental problems identified in the earlier sections. Oddvin Horneland offers a conceptual model that is designed to allow defense policy makers to evaluate the impact of defense forces on the environment. Detlef Sprinz develops an economic model of environmental security policies that state governments can apply both nationally and internationally. Katrina Rogers explores the lessons that can be learned from cases of international cooperation where conflict has been avoided. She suggests distinguishing between short-term ameliorative measures under the rubric environmental security and long-term sustainable activities under the term ecological security. The latter requires a serious political commitment to bring about social change.

Karin Dokken argues that fear of environmentally-induced conflict can act as a spur to regional integration and international cooperation so formulations of problems in terms of environmental security can be politically useful. Arthur Westing's analysis of international law and the environment includes specific suggestions that an international prohibition on the use of nuclear weapons is necessary and that natural heritage sites should be declared demilitarized sites. Oleg Kolbasov extends the arguments about responses to discuss international environmental justice and the recent establishment of the International Court of Environmental Arbitration and Conciliation. Valery Gergel discusses the possibilities of a World Environmental Code which might offer potential for peacekeeping and the settlement of environmental disputes.

JPR cover

Clearly this volume reflects the diversity of themes and approaches that currently fall under the rubric of environmental security. The concluding rapporteur's report by Geoffrey Dabelko suggests that the workshop's organizers recognize that there is no single framework that can encompass all the research and policy analysis germane to this theme. The diversity of disciplinary topics addressed, and the variety of methodological concerns articulated, suggests that what is going on here is also a political debate about the constitution of appropriate modes of dealing with political uncertainties that have some fairly obvious 'environmental' vectors.

One of the major conceptual weaknesses in all this discussion, both in this volume and the larger debate, of which this volume is a comprehensive encapsulation, is that analyses of the causes of degradation are underdeveloped even in the discussion of the post-Soviet societies and the especially pressing environmental plight in these regions. This despite the promising opening chapters which suggest that these matters are important. Especially germane is the comment (page 8) in the introductory chapter by Sverre Stub that "many of today's production and consumption patterns continue to be unsustainable." He goes on to argue that changes are needed in both the patterns and volumes of consumption, a matter that will require strong political action. Ruefully he then comments "Today, political courage and will are perhaps the scarcest resources of all; we need only to look at the disproportion between military spending and the efforts to change the unsustainable course of human behavior."

Brock's more general discussion of this theme in terms of the global economy, is not taken up in many of the papers where the theme might shed further light on topics of degradation and the other trans-boundary relationships that are important in unraveling the causes of the current predicament. Only the more philosophically informed chapters do this, but the absence of detailed development of these themes shows the limitation of policy and technocratic 'solutions' where the nature of the problem to be solved is not clearly specified. As Rogers, Lipschutz, Ivanov and some of the other authors also imply, these larger issues are crucial if the questions raised in the numerous case stud-

ies in this volume are to be adequately conceptualized. More than a technocratic approach is needed in dealing with these urgent and important matters.

A second important theme follows from these inadequacies of the technocratic approach. This is that the basic assumption in the introduction, of a common fate for all humanity, simply doesn't hold when empirical analysis is undertaken on the ground. Many of the chapters point to the regional particularities of degradation and the institutional history of specific conflicts as being important to resolution of difficulties. The crucial point is that the specific causes of degradation are different in different places. The simple and prevalent assumptions that economic development and liberal democracy have all the answers has to be questioned, as Ivanov and Rogers do, when the specific causes of degradation are investigated in their particular contexts. As this volume in general suggests, this theme obviously needs much further work by scholars in the field.

Despite these limitations, which are limitations in the field rather than specifically in this volume alone, this book deserves widespread dissemination as the most substantial single volume in the field. This volume is both a major academic statement in the field and significant because it has influential sponsors. It might even offer some useful potential as a teaching text although the price is likely to prove prohibitive. Despite the diversity of the contents and the number of contributors it is a remarkably well-edited compilation, although both factors stretch thematic continuity exceedingly in places. As a whole, the book raises numerous questions that need both debate and analysis. It offers an overview of both the current state of the discussions on environmental security and the diversity of arguments and research strategies, and as such, is a most useful addition to the literature in the field.

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Environmental Degradation as a Cause of War: Environmental Conflicts in the Third World and Ways for their Peaceful Resolution

by Günther Baechler, Volker Böge, Stefan Klötzli, Stephan Libiszewski, and Kurt R. Spillmann

1996 Vol. I, 401 pp.

Environmental Degradation as a Cause of War: Regional and Country Studies

by Günther Bächler and Kurt R. Spillmann (editors)

Vol. II, 720 pp., Vol. III, 440 pp., 1996

Berne: Swiss Peace Foundation/Swiss Federal Institute of Technology

Reviewed by Wenche Hauge

In 1996 the Swiss Environment and Conflicts Project (ENCOP) published its final report in the form of three volumes on Environmental Degradation as a Cause of War. The three volumes together make up an impressive gathering of case studies accompanied by a thorough review of theoretical approaches in Volume I. In addition to the contributions by ENCOP's own team of researchers in Volume I and II, Volume III contains contributions from external experts. The two volumes of case studies cover both regional and intra-state conflicts and contain analyses of violent as well as non-violent conflicts. All the case studies, except two, are published in English, whereas the theoretical volume is in German. Since this is one of the few more comprehensive theoretical studies on the relationship between environmental degradation and conflict, it will hopefully be translated into English.

The theoretical volume is unique in its efforts to link the concept of development more clearly to the problems of environmental degradation and conflict. It points to the fact that human-induced environmental degradation does not come about in a vacuum, but is linked to processes that intervene in the interplay between human beings and nature. At the core is modernization. Human-induced environmental degradation is brought about by: 1) destruction of social structures which were once well-adapted to ecological systems of different areas, and 2) by current needs of poor countries to develop, that exert high pressure on their natural resources. Pursuing export-led growth strategies in non-industrialized countries, many of them still relatively monocultural, has serious consequences, not only for the quality of land, but also for its distribution. A negative spiral of land degradation and marginalization is frequently seen. There is often a dividing line between elites privileged by participation in a few energy intensive projects, and poor peasants and nomads who are marginalized off the good land. The costs and benefits of dam projects and mining activity are thus also unequally distributed.

Moving beyond the economic needs of the state and on to the concept of "ecological regions" and "socio-ecological heterogeneity", the volume draws heavily on theories and concepts from resource geography. It is argued that the material basis for conflicts caused by environmental degradation lies in the dialectic process between underdevelopment, modernization and socio-ecological heterogeneity and how these factors influence the transformation of renewable resources. In addition to the material or structural basis for conflict, the analysis also includes a chapter on the actors in conflict and how their actions and preferences are formed. This is very well linked to the structural background.

Against the background of this theoretical analysis, and based on a large number of case studies, ENCOP has produced a typology of conflicts where

human-induced environmental degradation is at the core. The typology could also be referred to as conflict dimensions, since most often more than one dimension exists in each conflict. The typology is further divided into three categories: a) intra-state, b) intra-state but with inter-state aspects / internationalized or c) inter-state / international. These typologies are referred to as: (Type A I) Center-periphery conflicts; (Type A II) Ethnopoliticized conflicts; (Type A III) Regional migration conflicts; (Type B IIV) Cross-boundaries migration conflicts; (Type BV) Demographically-caused migration conflicts; (Type CVI) International water conflicts; and (Type CVII) Conflicts caused by global environmental degradation.

As mentioned, the two volumes of case studies cover both regional and intra-state conflicts and contain analyses of violent as well as non-violent conflicts. Most of the case studies start with a solid introduction to the ecological conditions of the country / region and are followed by historical explanations of current social structures. These parts investigate developments that have led to disruptions of the basis of living for people. One example is the end of the trans-Sahara pre-colonial trade, which produced serious consequences for nomad groups in Niger and Mali.

Ethnic cleavages are also critically explored against the background of the concerned groups' material basis for living. Some of the case studies illustrate that this variable may have contributed much to current formations of ethnic groups, as in Rwanda. Various aspects of modernization are also analyzed critically. Export-led growth frequently erodes natural resources, especially soil, and further skews an already unequal distribution of resources. Cleavages and fault lines in societies are reinforced, and sometimes also created by various modernization projects. Mining activity and large dam projects force large groups of people to migrate whether internally or across boundaries. These projects may also create upstream / downstream problems, as in the case between India and Bangladesh.

Needless to say, not all the case studies conclude that human-induced environmental degradation is an important factor in the conflict. One example is the case study of Algeria, where the environment constitutes a minor factor in the conflict. Other conditions, like a failed development strategy, a drop in international oil prices, a high foreign debt, a lack of opportunities for young people or a growth of religious fundamentalism combined with the lack of a democratic outlet are presented as main causes of the conflict.

The case studies give no simple answers to why conflicts develop. Rather they analyze and illustrate the complex interaction between historical factors, development of social and economic structures, ecological fragility and heterogeneity, and cultural factors in the conflict process.

The three volumes from ENCOP bring the academic discourse on the relationship between the environment and conflict several steps farther because of the solid theoretical framework and the large number of case studies attached to it. It is the art of simultaneously encompassing complexity while discovering patterns which makes this contribution valuable.

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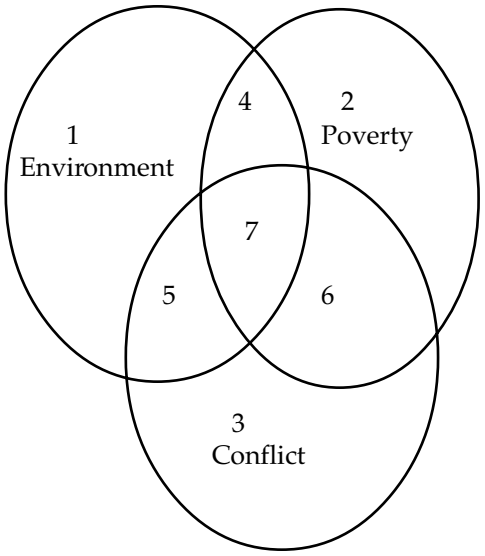
Research on Environment, Poverty, and Conflict : A Proposal

by Dan Smith and Willy Østreng (editors)
Oslo: International Peace Research Institute
The Fridtjof Nansen Institute, 1997, 109 pp.

Reviewed by Ashley Miller

In positive terms, we wish to identify the factors that regulate the relationship between sustainability, peace, and equity; or in negative terms, to identify the factors that regulate the relationship between environmental degradation, poverty, and conflict. (p. 5)

Researchers at two prominent Norwegian NGOs, the International Peace Research Institute (PRIO) and the Fridtjof Nansen Institute (FIN) seek to expand the discussion of environmentally sustainable economic development through the exploration of a third variable in the environment and security relationship - poverty. As the relationship between environment and security informs the study of environmentally sustainable development, the contextual setting for much of the field is in impoverished countries of the third world. Thus, poverty is identified as an important and overlooked variable. The addition of the poverty variable produced the following research concept for environment, security, and poverty:



1. Environment
2. Poverty
3. Conflict
4. Environment & Poverty
5. Environment & Conflict
6. Poverty & Conflict
7. Environment, Poverty & Conflict

PRIO and FIN use this "tri-circle model" as the logical framework for their research agenda. This report marks the initial findings of their model and the foundation from which this proposed program could be "adopted and implemented in the future research portfolio of the Norwegian Research Council" (p. 5). The research program's interest in adding the poverty variable is coupled with a responsibility to analyze the existing work to identify the theoretical and methodological implications of this new variable.

Commissioned researchers Valerie Percival and Carsten Rønnfeldt examined the field's literature and theories. They diagrammed its topical and theoretical shortfalls in order to influence the research agenda through identification of previously excluded topics such as poverty. Although Percival and Rønnfeldt wrote separate documents for the report, together their works encompass the collective narrative of environment and security. From Rønnfeldt's database survey of the research to date and literature review of the first, second, and upcoming third waves of environment and security field research to Percival's thorough examination of the leading methodologies including the important work by the University of Toronto, the two researchers mark the "*breadth and depth* on the links between environmental degradation, poverty, and conflict as well as the methodologies underpinning this research" (p. 7). Both Percival and Rønnfeldt utilize the tri-circle model as the framework for their analysis of current research.

The authors echo a similar concern that is pervasive throughout linkage of environment and security—the methodology of the case study. Percival and Rønnfeldt call for the examination of null cases, or situations in which environmental degradation is present but conflict does not occur. Case studies should include examples of environmental degradation and cooperation (non-conflict). This process would bring integrity to the case study methodology as well as set up an additional element of comparative analysis in the political processes of conflict and cooperation. Percival queries: "If one of the world's greatest ecological disasters [the shrinking of the Aral Sea] has not produced violent conflict, what predictive or explanatory value remains in the theory?" (p. 30).

Percival's section in the report produces a review and critique of Thomas Homer-Dixon's Toronto Group at the University of Toronto. The Group's large theoretical contribution to the field comes through its process tracing and case study methodology. As a former staff member of the Toronto Group, Percival provides a comprehensive overview of their methodology, and then poses unanswered questions to both the Group and the field as a whole. What of environmental scarcity's inextricable link to other "contextual" factors that lead to conflict? What problems are presented by the methodology's inability to fully separate from those economic and political factors? This interconnectedness increases the difficult task of designing effective methodologies and reinforces the need to examine null cases.

Poverty adds to the complexity of linking environmental scarcity to violent conflict due to its interaction with all the other contextual factors as well as its objective and subjective nature, according to Percival. Poverty becomes an intervening factor as environmental scarcity does not cause degradation until poverty forces the people to "ecological marginalization." This tie between poverty, environmental marginalization, and scarcity leads Percival to adapt the Toronto Group model with the addition of poverty. Percival understands how oversimplifying these factors may produce a deterministic causal path to violent action: "Researchers also need to examine if and how the presence of environmental scarcity and poverty changes opportunities for collective actions—through heightened group identities, declining institutional capacity (the state in particular), and weakened state-societal relations" (p. 24).

The integration of poverty into the investigation of environment and conflict allows Percival to recommend other important research agendas that would expand the field:

1. *International Political Economy* - Using structural adjustment policies as a point of departure, the emphasis on production stresses monetary resources, environment, and social structures. The allocation of resources shifts toward the productive sectors and away from others (especially the public sector). This dynamic affects each variable in the environment, poverty, conflict equation by increasing environmental degradation and poverty, possibly the conditions for violent conflict.
2. *Gender* - Presently, little research is conducted on women and conflict. Yet, gender analysis should examine the total effects of environmental scarcity, poverty, and violent conflict on men and women. Gender studies should help elucidate the social effects of environmental scarcity, poverty, and conflict.
3. *Health* - The well-being of a society is often measured through health indicators. The application of this strategy could prove an effective means of explaining the linkage between environmental scarcity, poverty, and conflict. These health indicators could possibly lead to a predictive measure of potential conflict.

4. *Post-conflict reconstruction* - This research reverses, in part, the environmental scarcity, poverty, conflict relationship. The period just after war contains many lasting effects of the violent conflict and brings many state-society issues to the forefront. What are the circular links between pre-war and post-war societies in terms of environment, poverty, and security?

Like Percival's future research agenda, the second report by Rønnfeldt contains his recommendations for new research within the realm of environment, poverty, and conflict. Although both authors analyze the environment, poverty, and security linkage from a sustainable development perspective, Rønnfeldt takes a more direct policy approach in his section. The purpose of research is "to examine causes of conflicts and their interplay in order to assess which policy instruments are required and in what circumstances, so as to facilitate the design of efficient environmentally sustainable strategies" (p. 55).

Rønnfeldt begins with a working definition of each of the terms environment, poverty, and security and points out the interdisciplinary nature of their linkages. Each term has "traditionally been dealt with in three different academic disciplines—environment within natural science, poverty within development theory, and conflict within international politics" (p. 57). He reviews the tri-circle model and then provides a short literature review for four areas: poverty and conflict; conflict and environment; environment and poverty; and environment, poverty, and conflict. His most in-depth literature review is on environment and security as he clearly identifies this research area as the most abundant and robust and compares it to the relatively non-existent work in the environment, poverty, and conflict area. Additionally, the environment and conflict literature fertilizes the future work of the Norwegian program as it contains an ongoing debate of just where, how, and in what context environment and security reticulate. Rønnfeldt presents research compiled using seven Norwegian and international databases to help determine the scope of present research. He completes a comprehensive search in each of the four above areas to support numerically his claim that there is little research in the area of environment, poverty, and conflict.

Rønnfeldt uses Marc Levy's division of three waves of environmental security research to organize the literature.[1] The description of the first two waves of environment and security literature lays the foundation for the third wave. Homer-Dixon and the Toronto Group produce the major work and methodology of the second wave. Rønnfeldt incorporates his criticisms of the second wave into the elements he suggests for the third wave, which he states as follows: Add a poverty dimension to 'Environmental and Conflict Studies;' Identify the relative importance of factors in the causal pathway to conflict; Include null cases in the analysis; Study cooperation in addition to conflict; Explore mechanisms of governance; and Focus on the regional level.

Woven through each of his recommendations is an emphasis on quantitative analysis and the policy implications of the environment, poverty, conflict field. Rønnfeldt stresses the need to apply quantitative methodologies to examine statistical correlations between environmental factors and conflict. As these factors are analyzed, the link between environment, poverty, and conflict may shift the focus of security to other political and economic factors. However, such shifts indicate Rønnfeldt's movement away from emphasizing strict causality between environmental degradation and conflict. Rather, he focuses on poverty as the important missing link in the previous logical frameworks. The analytical methods in turn should help policymakers prioritize among the causal factors, leading them to develop priority policy areas and "cost effective use of international assistance" (p. 72).

Rønnfeldt adds a section on governance that further speaks to his emphasis on research-supported policy initiatives. Governance incorporates the issue of political institutions and their effectiveness, but more importantly, it acts as "an intermediate variable between the independent variables poverty and environmental scarcity and the dependent variable conflict" (p. 78). According to Rønnfeldt, governance enables a transformative environment that could possibly move this discussion from environmental scarcity, poverty, and conflict to environmental sustainability, equity, and peace.

Most of Rønnfeldt's recommendations come together in the regional example of West Africa. He chooses West Africa because countries in the region are experiencing both conflict and cooperation, hence including the important null cases. Additionally, West Africa has regional structures in place which provide an opportunity to examine both governance and interstate cooperation. Rønnfeldt suggests three levels of analysis for his regional focus - the state in society, the systems level, and the regional level. He also cites other possible regions for analysis—Africa's Great Lakes region and Central America.

Rønnfeldt and Percival together provide a comprehensive review and point of departure as researchers embark on the third wave of environmental security work. Their recommended incorporation of poverty in the conflict equation moves the field more directly into the discussion of environmentally sustainable development.

[1] Levy, Marc, 1995. "Is the Environment a National Security Issue?" *International Security*, vol. 20, no. 2, pp. 35-62.

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Population and Environment: Rethinking the Debate
by Lourdes Arizpe, M. Priscilla Stone and David C. Major (editors)
Boulder, CO: Westview Press, 1994. 352 pp.

Reviewed by Mita Gibson

The debate over the interactions between human population processes and the environment can be traced as far back as 1789 when Thomas Malthus published his famous *Essay on the Principle of Population*. In recent years, the debate has been characterized by optimists such as Julian Simon who emphasize the importance of economic growth and technology as opposed to the more pessimistic view illustrated by Paul and Anne Ehrlich who focus on the need to reduce population growth whether through fertility reduction or control of migration. In *Population and Environment: Rethinking the Debate*, an interdisciplinary group of scholars examines the complex relationships between population and environment with special attention to the social, political and institutional context of these linkages.

Edited by Lourdes Arizpe, M. Pricilla Stone and David C. Major, the book is based on a collection of papers presented at a 1992workshop held in Mexico and funded by the John D. and Catherine T. MacArthur Foundation. The authors conclude that there is rarely a direct link between environmental problems, human activities and population issues. They also emphasize the importance of analyzing population trends in relation to other processes, particularly micro-level data about social and economic factors. Although the authors hold different views about the dynamic relationship between population and environment, they share a common concern about the oversimplified nature of the debate.

The book is organized into three parts. Part one provides an overview of population and environment with an examination of world population trends and the gender and environment debate. This first section includes chapters by Arizpe and Margarita Velazquez, Wolfgang Lutz, Gita Sen, Bina Agarwal, and Alberto Palloni. Part two includes case studies and a review of the complexities inherent in population-environment relationships. The second section includes chapters by Richard Bilsborrow and Martha Geores, Peter Little, Marianne Schmink, Stephen Bunker and Bryan Roberts. Part three provides a summary of conclusions and suggestions for future research.

Although many of the issues covered in this book have been examined before, the authors provide a wealth of information about the nature of population-environment linkages. The first two chapters are of particular interest from a development and foreign policy perspective. In the first chapter, Arizpe and Velazquez argue that the concept of population must be expanded to include social dimensions such as access to resources, livelihoods, gender and structures of power in addition to the usual demographic measures such as population size, density, and rate of increase. With respect to the linkages between conflict, population growth, and environmental degradation, Arizpe and Velazquez emphasize the importance of examining the social context such as the distribution of goods and services and the institutional context that governs access to critical resources, in addition to the usual population and environment indicators.

In the next chapter, Wolfgang Lutz focuses on world population trends and provides a valuable historical overview of population patterns in different regions. He outlines the determinants and basic characteristics of changing population patterns and asserts that population cannot be linked to environmental issues without considering intermediate behavioral and technological factors. Policy issues such as food security and conflict over resources are not simply the result of population growth or demographic factors but are also related to a range of socio-political, economic and institutional factors that are equally important.

The case studies included in part two illustrate the complex social relationships involved in population-environment linkages. There are two chapters with particular relevance for development and foreign policy. In "The Socioeconomic Matrix of Deforestation", Marianne Schmink presents a framework for analyzing deforestation with an emphasis on social dynamics such as conflict and cooperation as possible contributing factors. She examines case studies from Brazil and India and highlights the linkages between individual decisions about forest use, a changing market or policy environment, and conflict or cooperation among social groups.

The role of a changing market or policy environment is also examined by Stephen Bunker in a chapter on problems of population and environment in extractive economies. Bunker focuses on economies that extract natural resources for export and argues that an extractive economy can be a driving force for population growth and environmental degradation. As new lands are opened up for settlement or resource extraction, there is also potential for conflict between different classes such as peasant and rancher over access to the land and resources.

In addition to the chapters outlined above, this book contains valuable research on a range of population-environment issues focusing on the experiences and needs of local communities, particularly the experiences of women. Richard Bilsborrow and Martha

Geores present their study of population change and agricultural intensification in developing countries and conclude that it is difficult to demonstrate a convincing linkage between growing population pressure and changes in land use in developing countries. It is important to take a more holistic approach that examines the range of interrelationships between population and land use including increases in agricultural land area, the effect of outmigration and basic land use practices. In a chapter on urbanization and the environment, Bryan Roberts examines urban poverty and quality of life as well as the relationship between urbanization and environmental change. Roberts also takes a community-based approach and notes that urban poverty is not an inevitable result of population pressures but is also related to the political context and the lack of adequate urban planning

Since this volume was published in 1994, much has been written about the need to involve local people in the development process and respond to community-identified population and environment concerns. Many of the contributors to this book have continued to build on their research into the complex mediating factors involved in the relationships between population and environment. With its emphasis on the social, political and institutional context of population-environment dynamics, this book is an important resource for all those with an interest in the field.

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Biodiversity and Human Health
Francesca Grifo and Joshua Rosenthal (editors)
Washington: Island Press, 1997. 379 pp.

Reviewed by Jessica Powers

"In the end, the most powerful contribution of biological diversity is as the fundamental library for the life sciences."
-Thomas E. Lovejoy, Forward

Thomas Lovejoy's quote underscores the premise of this comprehensive volume, a follow-up to the two-day symposium sponsored by the National Institutes of Health, the National Science Foundation and the Smithsonian Institution in 1995. The contributors outline the many links between loss of species and human physiology and disease. The volume is divided into four sections covering: (1) the causes and consequences of biodiversity loss; (2) drug discovery from biological diversity; (3) biodiversity and traditional medicinal methods; and (4) developing strategies for the conservation and sustainable use of these crucial resources, including an agenda for the future.

Chapters, written by leading experts in various environmental and scientific fields, are unfettered by jargon and complement each other well. In the first section, Dr. Eric Chivian links global environmental degradation to the exponential growth of species extinction in recent years. The irreparable damage of unsustainable practices, particularly habitat destruction by humans, is identified as the greatest threat to ecological diversity. Robert Engleman and his colleagues connect population pressures to the loss of species and to the rise of infectious diseases.

Sections two and three review past and present drug discoveries as a direct result of species variety and the relationship between environmental change and human health problems. Without rich biodiversity, scientists will lack the wherewithal to counterattack the spread of infectious diseases. The authors present numerous examples of how both traditional medicinal practices and modern laboratories have culled remedies from biological sources. They also highlight major losses incurred by the science community as a result of anthropocentric, destructive human behavior.

Having cited the implications of biodiversity loss and demonstrated the necessity for continued use of medicines and remedies derived from diverse plant and animal species, the contributors in the final section explore the challenges of balancing development with conservation and sustainable practices. The authors offer specific solutions to these challenges, culminating in a recommendation found in the afterword. The authors advocate the establishment of a "National Council for the Protection of Biodiversity and Human Health," hoping to spur greater interaction, information exchanges and increased interest among physicians, scientists, non-governmental organizations and policymakers.

Overall the book is a practical guide on the salience of biodiversity with respect to pharmacology. Editors Francesca Grifo and Joshua Rosenthal have gathered an excellent multi-disciplinary group of scientists and scholars who provide a comprehensive and thoughtful analysis of the complicated interrelationship of environmental degradation, human population growth, species loss, disease and human health. Neither too pedantic nor oversimplified, this book serves as both a primer for policymakers and a general review for the scientific community.

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The Endangered Atmosphere: Preserving a Global Commons
by Marvin S. Soroos
University of South Carolina Press, 1997. 339 pp.

Reviewed by Stacy D. VanDeveer and Alex Farrell

The Endangered Atmosphere fills important gaps in the literature on international environmental cooperation and environmental security: It surveys four major international efforts to protect the atmospheric commons from over-exploitation, focusing on regimes for the regulation of nuclear testing, European transboundary air pollution, ozone layer protection and climate change. It also includes chapters on international scientific cooperation, the atmosphere as a commons, and environmental security. As a broad survey of major international agreements and organizations (both political and scientific) involved in ongoing efforts to protect the atmosphere, the book accomplishes much, offering up a great deal of empirical information. For each case, Soroos chronicles the emergence of atmospheric protection onto the international agenda and the development, over time, of international institutions and organizations to address defined problems. In particular, the book's treatment of the nuclear test ban regime as an important example of international cooperation in pursuit of environmental security goals is interesting and well informed.

There are many specific features of the book worthy of praise. The second chapter, a brief primer on the science of the atmosphere, is not to be missed by students of international politics because an informed understanding of the physical environment is a prerequisite to understanding environmental policy. Chapter Nine, which discusses environmental policy as a security issue is quite interesting, although the views of critics of this approach are not aired sufficiently. In particular, Soroos' examination of strategies to enhance environmental securities (vis-à-vis the atmosphere) by addressing "threats" and "vulnerabilities" suggests potentially fruitful avenues of policy and research. Perhaps the most useful part of this section is the development of a variety of Prisoner's Dilemma models for different environmental problems, especially the asymmetric version used to describe transboundary air pollution. Importantly, the author notes that there are some limitations to generalizing from the regimes studied in the book, but he may not go far enough in this regard. For example, in the case of transboundary air pollution, upwind nations (i.e. nations which contribute *to* the pollution of others but do not receive pollution *from* others) are generally resistant to emissions reductions unless it is shown that these emissions also have important impacts domestically. The broader implication is that international environmental policy will be difficult unless all (or many) nations feel that they stand to benefit.

The section on the atmosphere as a commons (Chapter Eight) presents a useful conceptual framework for understanding the problematique of managing the atmosphere, although it could be expanded, as suggested below. This chapter serves as a well-organized introduction to commons management debates. Soroos presentation of the complexities of the atmosphere as a "commons" – given that much of it lies within the national jurisdiction of sovereign states – illuminates many of the tremendous difficulties in managing such a resource with diverse human uses.

One particularly stark oversight of *The Endangered Atmosphere* is the lack of analysis directed at the international scientific information, cooperation and organizations Soroos posits as so important for political cooperation. At the international level, "science" and "policy-making" are rarely as separate as Soroos' treatment of them. Little or no attention is paid to the importance of scientific language and the ways in which scientists "frame" environmental and/or policy questions. For example, despite having an international appearance, virtually all of the analysis used to support LRTAP was performed in Austria, Norway or the Netherlands — nations which pushed for international environmental protection . A discussion of the causes and implications of this situation would be very illuminating, and potentially important when considering LRTAP as an example for international environmental policy development. Nor does the book probe the very asymmetric access and participation of states in "international science" or the ramifications of such asymmetries for negotiation, trust and institutional credibility and effectiveness. In none of the four cases discussed, for example, is data gathering, analysis and distribution unproblematic. Where are the heated scientific debates on the these issues? Surely they can matter for policy development. What about the importance of values as imbedded in varying perceptions of risk, credible evidence and the role of science in public policy? For example, states (and societies) can and do disagree on the credibility of scientific "findings." They may be skeptical of science done in another country or paid for by someone else. This unproblematic treatment of science leaves readers with an overly simple view of scientific and technical involvement in international relations, suggesting a much more linear process of policy development than most scholarship on the science-policy relationship have found.

Also surprising is a virtual absence of discussion on the European Union (EU). For the transboundary air pollution case the book focuses on the 1979 UNECE Convention and its follow-on Protocols (LTRAP) to the exclusion of virtually any EU policy, even though EU Directives currently have greater, and growing, importance compared to LRTAP. The discussion on

transboundary air pollution is limited in that it focuses almost exclusively on policies related to the ecological effects of acidification, with a brief mention of ground-level ozone. This focus may well be due to the attention that political scientists have traditionally paid to the acid rain issue, but it contrasts with the current scientific view that the atmospheric pollution is a multi-pollutant, multi-effects problem in which acidification, ground level ozone, eutrophication of water bodies, airborne particles, and global climate change are all inextricably linked. This view may strengthen the argument for a Law of the Atmosphere found at the end of the book, and deserves further study.

Most importantly, and the reader could easily become confused by the emphasis on international negotiations and treaties and think that these are key drivers of transboundary air pollution policy. Soroos focuses almost all of the discussion on transboundary air pollution on LRTAP and in some places (pp. 144, 265, 274) he explicitly claims that LRTAP has "measurable positive effects in mitigating the problems they were created to address." Confusion emerges when he admits elsewhere (pp. 141-144 and 275) that LRTAP Protocols did not directly result in emission reductions beyond what would have occurred regardless. The book only briefly mentions domestic issues or market conditions, arguably the primary forces shaping air pollution emissions. Indeed, a close examination of the evidences shows that nations which ratified the LRTAP Protocols were headed for emissions reductions already, due to changes in domestic policies or expected shifts in energy markets and thus ratification was essentially costless. Other nations participating in the negotiations, such as the United States and Poland, simply refuse to ratify most LRTAP protocols. Lastly, Soroos claims that there are important indirect effects of LRTAP, including the development of international institutions for air pollution research and monitoring and the development of domestic support for environmental policies in various countries. However, he does not analyze national-level research and monitoring, or the reasons for domestic support for environmental policies, and thus cannot test these hypotheses. The claims of indirect effects of LRTAP thus remain speculative.

Given the criticisms outlined above, *The Endangered Atmosphere*, contains a rich description of some important international environmental policy problems, draws valuable lessons from them, and presents some thought-provoking ideas for future research and policy. It presents a thoughtful summary of international relations research on the topic of protection of the atmosphere and is recommended for readers seeking such a treatment. However, the book's international relations focus highlights the need for more complete comparative research of national (and where appropriate, sub-national) level science and policy efforts related to international environmental policy.

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The New Geopolitics of Energy
by John V. Mitchell with Peter Beck and Michael Grubb
Royal Institute of International Affairs, 1996. 120 pp.

Reviewed by Paul Runci

Over the past fifteen years, the geopolitics of energy has undergone a transformation that appeared all but impossible in the early 1980s. At that time, the world's energy situation was largely a function of political relations between major exporters in the Middle East and major importers such as the United States, Japan, and Europe; the tensions inherent in those relationships were reflected in close government regulation and control of the energy industries in most countries. Moreover, the 'old' geopolitics of energy took place in the larger context of the Cold War, which overlaid its own tensions on the global game of energy supply and demand.

John Mitchell's *The New Geopolitics of Energy* shows how the geopolitical situation has shifted from one driven by OPEC-OECD relations and state management to one that is more market-oriented, diversified, and influenced by political issues and policies that lie beyond the pale of strategic considerations traditionally associated with energy. The global climate change issue is perhaps the best example of the new cast of issues affecting the evolution of energy geopolitics, which has become intertwined, for example, with debates over North-South equity and atmospheric science. On the supply side, major political changes of the past decade such as the end of the Cold War have helped to expand and diversify the world's oil and gas reserves by opening many promising areas in the former Soviet Union to private exploration and production. As Mitchell and his colleagues describe, developments such as these, combined with growing demand in East Asia, suggest that the world energy landscape is dramatically different—and in many respects brighter—than ever before.

What is surprising about *The New Geopolitics of Energy* is not what it includes in its discussion of geopolitical change, but rather what it omits. It would seem, for instance, that any discussion of energy and geopolitical change would have to devote significant space to the revolutionary role played by recent technological advances. Three-dimensional seismic explo-

ration, slant drilling, tertiary and deep offshore recovery techniques have made it possible and economical to produce oil and gas resources in areas where this was not feasible before. At the same time, high-efficiency gas turbines have broken the "natural monopoly" of the electric utility industry generating brisk inter-fuel competition and rethinking of the energy regulatory framework. The technological and regulatory developments that are now unfolding have major, if currently uncertain, implications for the future geopolitics of energy. The book also devotes surprisingly little attention to demand-side trends and to political developments in key regions such as Latin America that have altered the geopolitics of energy in significant ways. Examples include the privatization of national assets and the easing of restrictions on foreign investment. Finally, the authors' failure to include an index in the volume is a minor, yet unnecessary, frustration.

In short, *The New Geopolitics of Energy* attempts to provide an account of the dramatic currents of change and driving forces that are reshaping the world's energy situation. Unfortunately, the book misses some of the most important drivers of change and feels arbitrarily and hastily assembled.

Paul Runci is currently a doctoral candidate in government and politics and a research fellow with the University of Maryland's Harrison Program on the Future Global Agenda. He is on leave from the Pacific Northwest National Laboratory.

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Thinking Ecologically:
The Next Generation of Environmental Policy
Marian R. Chertow and Daniel C. Esty, eds.
Yale University Press, 1997. 271pp.

Reviewed by Melissa Brown

Thinking Ecologically is the result of a series of topic-specific workshops on a wide range of environmental policy issues. The participants included representatives from business management, domestic and international politics, industrial technology, multilateral investment agencies, health care, shipping, non-governmental organizations, utility companies, and academia.

The premise of the workshops and the book is the need for revitalizing environmental policy. In the introduction, the editors outline the methodology and progress of the 'first generation' of environmental policy in the United States, that extends from 1970 to the present. The chapters highlight the prevalent themes that emerged in the workshops.

Overall, *Thinking Ecologically* suggests a need for an integrated policy approach that considers the impact of environmental policy on other sectors as well as the impact of media specific environmental policies. Throughout the text there is a prevalent call for a blend of policy and process wherein the next generation of environmental policy is adaptive, multi-sectoral and non-stationary.

The essays in section one—*"Foundation for the Next Generation"*—examine the successes and failures of today's environmental policies and supply potential approaches that policymakers might consider for improving the next generation.

In "Industrial Ecology; Overcoming Policy Fragmentation" Charles W. Powers and Marian R. Chertow set the tone for the book. The authors explore the concept of industrial ecology as a means of reinventing environmental policy. Industrial ecology is explained as a systems approach of integrating science into the policy cycle. By basing distinct but cooperative regulations on the variables that create the varied range of environmental issues, the next generation of environmental policy will be more coherent and effective.

In "Land Use: The Forgotten Agenda" John Turner and Jason Rylander consider the linkages between land use questions and economic, social and environmental issues in the United States. The chapter illustrates the predominant theme in U.S. development – expansion. The authors point out that regulatory topics such as pollution and species protection are dealt with individually, rather than as parts of a system, the core of which is land. In addition, some legislation, even "environmental" legislation such as "Superfund" laws to clean up contaminated sites, has had inadvertent economic consequences that provide incentives for further development rather than land-use efficiency. For the next generation of policy, the authors suggest strategies that address the cumulative effects of land use planning. They advocate "systems thinking," community engagement, education, partnership among the government, NGOs and industry, environmental justice, integration wilderness protection and rejuvenated spirituality as means of attaining comprehensive land use policies.

Elizabeth Dowdesville and Steve Charnovitz examine the correlation of ecological and environmental consequences in "Globalization, Trade and Interdependence." They consider the relationships between national and global environmental policy; current and historical issues of trade and the environment; and international investment as a facilitator for environmental improvement. The chapter illustrates the need and the potential for better enabling international environmental policymaking institutions to address global environmental issues comprehensively. The authors advocate larger roles for NGOs in international development policy. They advise that the next generation

of international environmental policy must incorporate economics and development, while environmental issues should be further integrated into trade blocks and treaties. They assert that politically, economically and environmentally, international cooperation is necessary for national sovereignty, and therefore it is necessary to advance the next generation of environmental policy on a global, multi-sectoral level.

In section two, "Tools and Strategies for the Next Generation," the essays consider current issues as situations, trends and harbingers. In "Privately Financed Sustainable Development," Stephan Schmidheiny and Bradford Gentry discuss the international trend away from development aid and toward private investment, as a means of fostering sustainable development. Private capital increasingly comprises the majority of international financial income for many developing countries. In addition, international investors are demonstrating a preference for projects marketed as "sustainable." The authors recommend that governments of recipient and investor countries work with investors and multinational corporations to integrate environmental and social initiatives into development. They assert that as a major investor and a significant recipient of private capital investment, the United States must build sustainability into its development policy, both domestically and abroad.

E. Donald Elliot explicates in "Toward Ecological Law and Policy" the premise that environmental policy too often ignores the interconnectedness intrinsic to the environment. Elliot stipulates that federal laws often do not account for local conditions and variables and simultaneously restrict the power of local authorities. The chapter describes the "command and control" system as a central government commanding the acceptable level of pollution, and then controlling the means of attaining that level. Elliot proposes a system of "command and covenant" where the federal government sets the standards, but decentralized authorities achieve compliance through locally appropriate methods. He suggests that the next generation of environmental policy should mirror nature by building on successful techniques and developing systemic "bubbles" where national policy is implemented through decentralized bodies. The strategies recommended in this chapter include economic incentives; improved environmental information programs; private programs; and structural changes to environmental programs.

The third section, "Extending the Reach of Next-Generation Policy," takes environmental policy to a new level by highlighting ideal policy and technology initiatives. These ideas are, for the most part, not likely options for the present.

In "Coexisting with the Car," Emil Frankel discusses existing realistic and successful programs of privately maintained toll roads and high occupancy vehicle lanes. He outlines a logical blueprint for transportation system improvements such as incentives for public transportation and carpooling, automobile technology innovation, and increased personal car taxes. However, it has proven extraordinarily difficult in the United States to innovate in the transportation, energy, and agriculture sectors. The other topics covered in this final section may be useful for generating goals, rather than facilitating applications.

In the final chapter, "A Vision for the Future," Esty and Chertow address the realism of the included essays. Esty and Chertow acknowledge that *Thinking Ecologically* is a set of diverse, strong suppositions and theories that may even contradict each other. However, this volume is not intended to be a book of answers. It is a tool for initiating discussions, and possibly reforms, in the next generation of environmental policy. *A Vision for the Future* is filled with images of an environmentally utopian world where the ideals of each author are realized. These are goals to strive for, but not to expect—"our vision is deliberately optimistic, and by no means the most likely."

Melissa Brown recently completed her Master of Science in Resource Management and Administration at Antioch New England Graduate School.

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Armed Conflict and Environmental Security: An Overview
by Arthur H. Westing

Protecting Areas (Nature Reserves) and Biodiversity During Armed Conflict
by Jeffrey A. McNeely

The Laws of the War and the Protection of the Environment
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La protection de l'environnement enperiode de conflit arme dans l'Action du Comite International de la Croix-Rouge
by Naigzy Gebremedhin

Land Mines: Dealing With the Environmental Impact
by Jody Williams

Nuclear Weapons Tests, Arms Control, and the Environment: The 1995 World Court Case and Beyond
by Nico J. Schrijver

Update on the Task Force on State Failure

Over the last four years, the Central Intelligence Agency's Task Force on State Failure has been conducting an empirical effort to identify factors associated with state failure by examining a broad range of demographic, societal, economic, environmental, and political variables. The project design, selection of variables and interpretation of results has been pursued by three teams of academic consultants led by Daniel C. Esty (School of Forestry and Environmental Studies, Yale University), Jack Goldstone (Department of Sociology, University of California at Davis), and Ted Robert Gurr (Department of Government and Politics, University of Maryland).

Before entering its second phase of study, the three scholars shared their preliminary findings at a May 1996 meeting at the Wilson Center. Thomas F. Homer-Dixon of the University of Toronto was the commentator for the session. During their presentations, the researchers emphasized that their preliminary findings do not represent the official view of the U.S. government or the Intelligence Community. The Task Force identified more than 100 serious political crises, or state failures, between 1955 and 1994 that posed security and stability threats. These crises took the forms of ethnic and revolutionary war, overthrow and collapse of regimes, and genocide or politicide. Effects of about 75 possible independent variables on state failure were examined—including demographic, social, economic, environmental and political variables. The Task Force found that three clusters of variables had significant correlation with subsequent state failures: (1) quality of life; (2) openness to international trade; and (3) the level of democracy. However, it is the interaction among these variables that provided the most important insights.

Quality of Life
Low levels of "quality of life" indicators—including high infant mortality, low nutrition, low per capita incomes, low access to safe drinking water, etc.—were strongly correlated with higher risks of state failure. Among a dozen such variables, the level of infant mortality was found to be the best proxy for overall quality of life as it related to risks of state failure.

Openness to International Trade
Countries that had a higher volume of international trade relative to GDP had a lower risk of state failure. Higher and more open trade is associated with greater stability.

Level of Democracy
Democratic countries were generally less likely to experience state failure. However, the effect of democracy was strongly significant *only* when combined with the other clusters of variables. Non-democratic regimes were more vulnerable if they were not relatively open to international trade. But for democratic regimes quality of life variables had much stronger effects; indeed, democratic countries experiencing low quality of life indicators had especially high risks of state failure.

There were wide disparities in the quality and availability of data available to the researchers, with notable deficiencies in the environmental data. The researchers were careful to note that the study has thus far identified factors associated with state failures but its models do not establish cause and effect relationships. The study suggests avenues for additional research and analysis examining political state instability and concludes that Task Force work should be augmented with intelligence information before making judgments about the prospects for states to fail.

In March 1998, the Environmental Change and Security Project hosted another follow-up meeting on the Task Force, again with Esty, Goldstone, and Gurr as well as Barbara Harff of the U.S. Naval Academy and Marc Levy of Williams College. The scholars presented their findings from the conclusion of phase II and the specific environmental conclusions are: (1) Environmental variables indirectly affect the probability of state failure; (2) Environmental stresses, in connection with underlying environmental vulnerability and state capacity, help to explain variations in quality of life which, in turn, affects the probability of state failure; (3) A mediated model provides a mechanism for folding environmental variables into state failure analysis; (4) Data gaps, especially weak measures of vulnerability and capacity, limit the ability to analyze the connection between environmental variables and state failure; (5) Vulnerability and capacity have a stronger impact on infant mortality than environmental stress; and (6) After adjusting for vulnerability and capacity, environmental factors are statistically significant.

Phase II also included work on three other issue areas: (1) Tracking accelerators to conflict, (2) More sophisticated analysis of autocracies, partial democracies and full democracies and their likelihood to experience state failure, and (3) Testing numerous hypotheses with additional datasets designed to improve the quality and quantity of data.

The final version of the State Failure Task Force's Phase II Report has not been printed as this Report went to press. However, the Environmental Change and Security Project has agreed to compile a list of those readers who are interested in attaining a copy of the Phase II results once they are available. Please refer such requests to Michael Vaden at vadenmic@wwic.si.edu. Look for a full summary of the March 1998 meeting in next year's *ECSP Report* Issue 5 and on the Project's website at http://ecsp.si.edu.