

60 Environmental Security: Academic and Policy Debates in North America

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60.1 Introduction¹

For the environmental community of North America, the 1990's began with great enthusiasm and energy, buttressed by a grave sense of urgency. In the post-Cold War world, sustainable development and conservation were widely embraced as pillars of a new world order. After being sidelined for much of the 1980's, the environment was restored to a position of primacy on the global agenda, and in short order elements of environmental rescue snapped into place like pieces of a global green jigsaw puzzle - *Our Common Future*, the Rio Earth Summit, Agenda 21, the Framework Convention on Climate Change, the Convention on Biological Diversity, the Global Environmental Facility, and so on. The *North American Free Trade Agreement* (NAFTA), which came into effect in 1994, included an environmental side agreement that promised to bridge the elusive gap between free trade and environmental protection.

The sceptical, obstructionist mindset of the Reagan and Bush I presidencies was swept away by the science-based environmentalism of Clinton and Gore. A heady mixture of capacity, resolve and opportunity wafted through Washington's corridors of power, sloshed across energy-hungry Canada, and spilled southwards into a Mexico seeking rapid economic development. The environment, the new American administration argued, could be saved without sacrificing human development, and the United States would lead this effort through the example of its own behaviour and through the authority attached to being the world's only remaining superpower.

While environmentalists in North America and around the world were rallying around sustainable development and *Agenda 21*, the North American secu-

rity community found itself at sea after five decades of unwavering focus on preventing a nuclear war with the Soviet Union. The process of rethinking security soon became intertwined with the process of environmental rescue.² The linkages were forged by many people, for many reasons. Some believed that in our degraded global environment, natural resource scarcity was rapidly becoming a significant contributor to violent conflict (Homer-Dixon 1991, 1999; Gleick 1993). Others looked at the sheer size of the world's militaries, and their ugly Cold War footprints, and concluded it was time for these powerful entities to be greened and harnessed to an environmental agenda (Butts 1999). Still others sought to integrate environmental issues into the larger project of complementing - or replacing - the concept of national security with the concept of human security (Lonergan 1999).

While a plethora of initiatives in Canada and the United States explored often highly original ways of associating the environment with security, these initiatives triggered a sobering, cautionary response literature. How would such a linkage be viewed in the developing world (Dalby 1992)? Could it lead to the securitization of the environment (Käkonen 1994)? Could the cultures of environmentalism and security be reconciled enough to ensure the effort produced more good than bad (Deudney 1990)?

In this chapter we examine several of these initiatives, focusing on North American scholars and giving a fair amount of attention to the behaviour of the Clinton-Gore administration, which sought to lead on this new policy agenda.³ We conclude that efforts to

1 A few portions of this chapter appeared in *ECSP Report 8* (Summer 2002), published by the Woodrow Wilson Center's Environmental Change and Security Program.

2 See: e.g. Mische/Ribeiro 1998; Renner 1989; Deudney 1990; Finger 1991; Homer-Dixon 1991; Dalby 1992; Kaplan 1994; Käkonen 1994; Levy 1995; Deudney/Matthew 1999; see also chap.20 by Homer-Dixon/Deligiannis.

3 We do not include Mexico that is partly covered in chap. 90 by Oswald Spring.

link environment and security have had mixed results. For example, some practitioners have reasoned that if natural resources are becoming so scarce that countries will fight over them, then we need to lower the bar for development at home in resource-rich protected areas such as Alaska and the Arctic – hardly the outcome sought by scholars and environmentalists. On the other hand, the environment has been fused successfully to the burgeoning paradigm of human security, which is emerging as the foreign policy focus of middle powers such as Canada and Japan. Most problematically, we argue that popularizing the concept of environmental change as a complex, global threat marked by much uncertainty established a discursive model that the current Bush II administration has adapted for explaining terrorism to its public, and for justifying enormous expenditures and pre-emptive action through reference to a formulation of the precautionary principle. The zeal with which some scholars acted to establish the policy relevance of their work has had some unintended, and negative, consequences. At the same time, however, Al Gore has done much to reframe climate change as a global and human security issue, integrating natural and social science research into a powerful presentation for practitioners, and compelling all North Americans to think in the often unfamiliar terms of global connectedness and interdependence.

60.2 Origins of Environmental Security in North America

Efforts to link environment and security have not in any sense been confined to North America, and, in fact, much of the most important, influential and inspiring analysis has been conducted by scholars in Scandinavia, Germany, Australia and many parts of the developing world, such as Pakistan and India. The brief history we provide here, focused mainly on events and writings in North America, should be understood as part of a larger story, to which North America contributed and with which it has interacted in many ways.

Responding to global concerns about the impact of human behaviour on the natural world, the contemporary formulation of the environmental movement emerged in North America in the 1960's, building on an earlier era of conservation identified with individuals such as John Muir and associated with achievements such as the founding of the Sierra Club and the establishment of a national park system. Envi-

ronmental historian John McCormick (1989) points to several factors that converged in the 1960's to promote the transformation of earlier conservation movements into modern environmentalism. The proliferation of nuclear weapons, the post-World War II continuation of wartime levels of military spending, and the rapid pace of economic development raised general concerns about the high-consumption character of advanced industrial society. Scientific evidence began to record and explain the magnitude and variety of human-generated environmental change with great – and disquieting – precision. Environmental accidents, such as oil spills, increased in number and captured public attention. In North America, as in Europe, baby boomers entered a period of intense social critique and activism that engendered, among others, civil rights movements, women's movements, antiwar movements, and back-to-nature movements. In 1962, Rachel Carson wrote an impassioned account of the human recklessness evident in gratifying immediate needs by spraying the planet with poisonous pesticides such as DDT, which gave rise to new forms of birth defect and social criticism.

Concern about the environment gathered critical mass throughout the 1960's and 1970's. Throughout much of this period, however, environmental concerns seemed of little relevance to national security analysis and planning. Defence institutions were generally regarded as an intractable part of the problem. From an environmentalist perspective, they were irresponsible entities that resisted the regulatory constraints emerging around the Clean Air and Clean Water Acts; dumped and abandoned enormous quantities of solid and toxic waste on land and at sea; secretly tested nuclear and other environmentally destructive weapons, exposing humankind to radioactive contamination and other health threats; and were willing to destroy nature when preparing for or engaged in war. But they had to be tolerated in an anarchic world dominated by superpower rivalry and ever vulnerable to the threat of all-out nuclear Armageddon.

Nonetheless, evidence of the harmful effects of using defoliants in Southeast Asia during the Vietnam War (Neilands/Orians/Pfeiffer/Vennema/Westing 1972; Westing 1976) did lead in 1977 to two important international agreements: the Additional Protocol I to the 1949 Geneva Convention on the Protection of Victims of International Armed Conflicts and the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (Brauch 2003c).

The ‘limits to growth’ thesis propounded by Meadows, Meadows, Randers and Behrens (1972) and the first OPEC oil crisis in 1973 stimulated some fear about how resource scarcity might endanger economic growth in the North and create competitive conditions ripe for armed conflict. The Carter Doctrine, affirming the strategic value of the oil-rich Middle East, was in part a response to these concerns.⁴ But discussions of energy self-sufficiency garnered little support. After all, through trade, arms, and ingenuity one could gain access to anything as long as the real threat to the United States was held in check: the threat of Soviet expansion.

But while the structure and character of the Cold War shaped security thinking in much of the Western world, the elaboration of broader concepts of security did gain some attention. The environmentalist Lester Brown (1977), described by the *Washington Post* as “one of the world’s most influential thinkers,” wrote an exploratory piece on *Redefining National Security*. In 1982 the Independent Commission on Disarmament and Security Issues, chaired by the Swedish socialist Olof Palme, released a report on *Common Security*. The authors of this report distinguished between ‘collective security’ (security against armed force provided to its members by NATO) and ‘common security’, which focused on non-military threats such as those posed by environmental degradation and poverty. This conceptual trajectory was pushed further in Richard Ullman’s 1983 article “Redefining Security,” in which he sought to broaden the concept of national security to include non-military threats to a state’s range of policy options or the quality of life of its citizens. In the mid-1980’s, former Soviet President Mikhail Gorbachev expressed a similar perspective through the notion of ‘comprehensive security’, and in his speech to the UNGA in 1989 he promoted the concept of ‘ecological security’.

In 1986 the Chernobyl nuclear facility experienced a meltdown that caused widespread harm and even wider spread anxiety. Arguments about environmental threats to human welfare and security seemed suddenly very persuasive. The *World Commission on Environment and Development* chaired by former Nor-

wegian Prime Minister Gro Harlem Brundtland (1987), issued its report: *Our Common Future* that focused on the interlocking processes of population growth, food production, ecosystem protection, energy use, industrialization, and urbanization, the authors argued for a global commitment to sustainable development. To fail to make this commitment, they contended, would place the future of much, perhaps all, of humankind in jeopardy.

By the late 1980’s, as the Cold War approached absolute zero and environmental awareness rose to unprecedented levels, and as some of the more threatening implications of rapid technological change were being worked out by researchers, articles began to appear making explicit linkages between environmental change and security. Influential writings by Jessica Mathews (1989, 1997), Norman Myers (1989), and others began to be widely circulated in policy circles. Arguments varied enormously, but the basic idea that environmental change was serious enough to be considered a security issue made sense to many analysts, activists, and practitioners.

60.3 Environment and Security during the Clinton-Gore Era

Perhaps in response to the articles on rethinking national security published at the end of the Cold War, former President George Bush added threats posed by environmental change to the *National Security Strategy of the United States* in 1991.⁵ The following year the Clinton administration was installed in Washington. Vice President Al Gore and others took seriously the claim that the health of the environment was a matter of utmost importance to the long-term interests of the United States and the world.

The level of interest in Washington increased notably when the journalist Robert Kaplan published an article in *The Atlantic Monthly* in which he described environmental change as “the national security issue

4 During his 1980 “State of the Union Address”, President Carter declared: “Let our position be absolutely clear: an attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.”

5 “Global environmental concerns include such diverse but interrelated issues as stratospheric ozone depletion, climate change, food security, water supply, deforestation, biodiversity and treatment of wastes. A common ingredient in each is that they respect no international boundaries. The stress from these environmental challenges is already contributing to political conflict. Recognizing a shared responsibility for global stewardship is a necessary step for global progress. Our partners will find the United States a ready and active participant in this effort” (Bush 1991).

of the early 21st century” (Kaplan 1994: 61). Kaplan's thesis in *The Coming Anarchy* was simple and, for many policymakers searching for a new security paradigm, compelling: combine weak political systems, burgeoning urban populations, grinding poverty, environmental degradation and scarcity, and a flood of cheap weapons, and societies could become highly volatile. This lethal mixture, Kaplan suggested, already was generating high levels of violence in West Africa; soon it would affect the rest of the planet. This was likely to happen because at the very root of the social collapse evident throughout West Africa was extensive environmental degradation—a problem the entire world was experiencing. The pathways to violent anarchy might differ from one place to the next, but all of humankind was being pushed along one of them. The state of the environment, Kaplan concluded, had become a matter of national security. This analysis intrigued both Clinton and Gore who were searching for an explanation of the tragedies unfolding in Haiti, Somalia and Rwanda.

Often working behind the scenes and in a context of stiff resistance from other senior White House officials, Gore used a variety of strategies to introduce environmental concerns into key agencies and policy areas.⁶ So successful was Gore in rallying support in the foreign policy arena that in 1996 Secretary of State Warren Christopher (1998), an individual who until then had seemed scarcely aware of environmental problems, made a corner-turning speech at Stanford University that caught the attention of both environmentalists and foreign policy-makers around the world. According to Christopher (1998):

The environment has a profound impact on our national interests in two ways: First, environmental forces transcend borders and oceans to threaten directly the health, prosperity and jobs of American citizens. Second, addressing natural resource issues is frequently critical to achieving political and economic stability, and to pursuing our strategic goals around the world.

Indeed, “Environmental initiatives can be important, low-cost, high-impact tools in promoting our national security interests.” What sort of environmental initia-

6 Gore proved especially adept at restructuring in situ policies and institutions and at using environmental initiatives as a basis for advancing diplomatic goals. The so-called ‘Gore bilateral,’ forged with his counterparts in Russia, South Africa, and elsewhere, are a series of high-level agreements to cooperate on shared environmental problems that are typical of Gore's resourcefulness. For a sense of his perspective on environmental issues, see Al Gore (1992).

tives? Christopher outlined an ambitious four-part programme for his Department:

- Produce an annual report to assess global environmental trends and identify American priorities, beginning in 1997;
- Establish a dozen Environmental Opportunity Hubs to involve American embassies in assessing and addressing regional environmental issues worldwide;
- Host an international conference on treaty compliance and enforcement within two years;
- Promote an array of partnerships with business, and bilateral, regional and global initiatives to channel environmental problems into the social settings that have the resources and will to solve them.

Unfortunately, within a few years budget constraints and other obstacles had largely erased everything from the State Department's far-reaching and even visionary agenda. Internal opposition, deeply ingrained and hard-to-change behavioural patterns, lack of congressional support, and the inability of anyone to articulate a clear set of foreign environmental policy goals help explain the mixed results of these efforts (Hopgood 1998).

Problems within the State Department, however, did not put the brakes on efforts to integrate environmental concerns and national security. In July 1996, John Deutsch, then director of the *Central Intelligence Agency* (CIA), discussed the relationship between intelligence and the environment in a speech to the World Affairs Council. According to Deutsch, the potential for using CIA capabilities and archives to provide useful environmental intelligence at a low cost is great.⁷ Another support was outlined in a speech by Deputy Under Secretary of Defense for Environmental Security, Sherri Goodman (1996), who signalled her office's desire:

to understand where and under what circumstances environmental degradation and scarcity may contribute to instability and conflict, and to address those conditions early enough to make a difference, [and] to determine where military environmental cooperation can contribute significantly to building democracy, trust and understanding.

The flurry of policy statements in 1996 capped several years of diverse and relentless efforts to integrate en-

7 In fact, as discussed below, several initiatives were well advanced by 1996, although problems associated with concerns about declassification criteria persisted.

environmental concerns into national security policy. Attention focused primarily on ways in which environmental change could threaten national interests and hence become relevant to the traditional mandates of military and intelligence institutions. But U.S. environmentalists and security specialists also considered ways in which security institutions and practices can and do affect the environment adversely, as well as ways in which security assets could be applied to restore the environment and support domestic and foreign environmental policies.

60.4 The U.S. Discourse: Environmental Threats to 'National Security'

One can discern in the considerable academic and policy activity that took place from 1990 to 2005 in the U.S. at least eight ways of linking environment to security. This list is not intended to be definitive, nor is it a typological list with a clear ordering logic. Instead it is an attempt to capture the principal areas of research and policy, together with some of the criticisms they triggered, evident in the U.S. during this time period.⁸

60.4.1 Tension, Instability, Conflict and Violence Affecting U.S. Interests Caused, Amplified, or Triggered by Environmental Problems

According to researchers such as Peter Gleick (1991, 1993), Michael Klare and Thomas Homer-Dixon (1994, 1999; Homer-Dixon/Blitt 1998) the potential for environmentally escalated violence is significant and growing. Gleick (1993b), for example, has written extensively on the possibility of 'water wars'. Throughout the world, the demand for fresh water is increasing due to population growth and economic development. Many states rely heavily on sources that serve other countries as well. Pollution, depletion, and natural limits affect the availability of water. As demand grows beyond supply, which UNEP FI (2005) predicts could be the case in fifty-two countries by 2025, tension could grow as well, especially if animosity already exists. This may be especially true in places like the Middle East, where several states compete for the already stressed waters of the Jordan, Nile, Tigris, and

Euphrates. Klare (2001) extends Gleick's concern about water to consideration of other resources such as oil, timber, gems and minerals. While other researchers point out that, historically, states have almost always found ways to cooperate over shared water systems (Wolf 1997) and others raise important questions about this type of analysis (Lowi 2003); many acknowledge that acute need may overwhelm regional cooperation in the years ahead, leading to tension and perhaps armed violence.

Homer-Dixon (1994, 1999) has argued that environmental factors could have a far greater impact on intrastate violence. He contends that the prospects for environmentally induced or amplified state institutional failure, ethnic conflict, urban violence, and mass migration are high and likely to increase. Through a series of globe-spanning case studies, his team of researchers paints a foreboding image of a future in which environmental scarcity plays a growing role in generating violent outcomes, especially in developing countries already straining under the burdens of poverty, inefficient and corrupt governments, ethnic hatred, and renegade militaries. Work on the scarcity-conflict thesis has received a great deal of criticism. Some critiques focus on the recommendations and predictions resulting from the research, rather than on the underlying theoretical notion that environmental degradation can indirectly contribute to security threats (Deudney 1990; Peluso/Watts 2001). Other critiques emphasize serious methodological flaws in the research (Levy 1995). Compelling arguments also have been developed by mainly European scholars suggesting that careful quantitative analysis does not support the conflict-scarcity thesis, but uncovers instead a strong link between abundant, lootable natural resources and violent conflict (Collier/Hoeffler 1999; Collier/Hoeffler/Soderbom 2001; Hauge/Ellingsen 1998; Gleditsch 1997).

60.4.2 Activities Affecting U.S. Access to Environmental Goods Abroad

The cornucopian thesis (Gleditsch 2003) promoted by writers such as Julian Simon and Herman Kahn (1984) suggests that under conditions of resource scarcity, innovation accelerates and technology often can be used to develop substitutes. Where this is not possible, others note that trade will often prove an economical approach to meeting shortfalls (Deudney 1990). But some analysts contend that substitution and trade will not always succeed. The easy access the

⁸ For a European perception of 'environmental security' as a US national defence goal, see Brauch 2003: 89–90.

U.S. has enjoyed to the world's natural resources may diminish.

Recently numerous conflicts have taken place over access to fisheries (Porter 1995). Popular discussions of the Gulf War (1990) and the Iraq War (2003) suggest that U.S. desire to protect access to cheap oil played a major role in the decisions to use force. It is conceivable that states will one day consider using force to protect environmental goods such as rain forests – which regulate climate, serve as important carbon banks, and contain high levels of biodiversity – if diplomatic solutions prove unsuccessful. In short, factors such as resource depletion, population growth, and economic development in the South could affect U.S. access to or enjoyment of some natural resources.

60.4.3 Terrorist Activities Responding to Environmental Degradation, Targeting the U.S. Environment, or Using Ecological Systems as a Medium for Spreading Terror

In the wake of the 11 September 2001 terrorist attacks and the anthrax incidents of October 2001, one of the great doomsday scenarios that has seized the imagination of the American public and policymakers is that of a group of terrorists contaminating the water, food, or air supply of one or more major American cities with some dangerous substance such as plutonium or a virulent pathogen. Recent studies suggest that the country is vulnerable to this sort of attack and unprepared to respond. In April 1998, following the 'anthrax scare' in Las Vegas, FBI Director Louis Freeh described chemical and biological terrorism as "the greatest vulnerability we have right now."⁹ At the same time, Attorney General Janet Reno stated: "We need to make sure we have a significant stockpile – and I don't think we do – of vaccines and other medications."¹⁰ Numerous researchers have suggested that there is a growing risk of a major chemical or biological attack on the U.S. Small incidents have already been identified, such as in 1985, when members of a religious cult contaminated several restaurant salad bars with salmonella, causing 751 people in Oregon to become seriously ill (Torok et al. 1997). A growing

concern in the U.S. is the steady stream of attacks on targets such as commercial logging, government facilities, bio-engineering companies and land developers by groups such as the Earth Liberation Front and the Animal Liberation Front.¹¹ These network-structured organizations are difficult to neutralize and have demonstrated a willingness to engage in violence.

60.4.4 Greening the Military

While many environmentalists promote deep structural changes that would tend to render the military obsolete, some are more pragmatic, aware that throughout the world militaries are highly trained, well-organized, and well-funded social institutions. Moreover, in a world that regularly produces a vast array of threats – including the threat of armed aggression – militaries are not likely to be dismantled in the near future. One must ask whether they can be made less environmentally destructive than they have been in the past. For in the past militaries throughout the world – and especially in the United States and the former Soviet Union – have been reckless and cavalier, devouring energy, treading carelessly over vast tracts of territory, experimenting with lethal weapons, and generally creating and disposing of huge quantities of toxic chemical and solid waste (Feshbach 1995).

According to Kent Butts (1994 1996), in the 1990's the Department of Defense decreased toxic waste by fifty per cent. In cooperation with Sweden, it developed guidelines for environmental standards for military training and operations. It worked with Russia and other Arctic nations to reduce radioactive contamination of the Arctic region. The Australia-Canada-U.S. trilateral commission is another example of an attempt to address environmental problems cooperatively. Base cleanup was somewhat less successful, and anecdotal evidence suggests that throughout the world militaries continued to treat the environment in a reckless manner. Nonetheless, environmental awareness appears to have penetrated this historically single-minded and independent entity, and even generated more sustainable forms of behaviour. Even as the American military became more focused on fighting wars in Afghanistan, Iraq and the global war on terror, it continues to address environmental issues.¹² Further research needs to be done, however, to fully

9 "Pentagon undergoes mock terrorist attack", in: CNN, 30 May 1998; at: <<http://www.cnn.com/US/9805/30/terror.pentagon/>>.

10 "Reno, FBI head report on terrorism", Associated Press, 22 April 1998.

11 Stefan H. Leader; Peter Probst: "The Earth Liberation Front and Environmental Terrorism", 2002; at <<http://www1.umn.edu/dcs/earthliberationfront3pub.htm>>.

assess the ecological modernization process still under way in the defence sector.

60.4.5 Using Military and Intelligence Assets to Support Environmental Initiatives

Intelligence and defence possess highly sophisticated resources that can assist in environmental assessment and monitoring and in developing 'green' technologies. This issue received considerable attention in the United States in the 1990's. Under the aegis of Vice President Gore, the CIA permitted civilian scientists to examine archived material that might be useful in assessing environmental degradation. The 'Medea Group', set up by the *National Intelligence Council* (NIC) in 1992, determined that archived satellite imagery was of great scientific value. Moreover, current intelligence technology is so sophisticated that satellite imagery could be used to diagnose the health of forests as well as monitor deforestation. It can penetrate water well enough to assist in evaluating the condition of fisheries. It already has been used to track and help fight forest fires. In view of this, the NIC began exploring ways to make the CIA's data gathering and analysis capabilities available to environmental consumers, including foreign and nongovernmental organizations. In 1997 the *Director of Central Intelligence (DCI) Environmental Center* was created partly for this purpose.

Some observers are sceptical of this initiative, on the grounds that the CIA's penchant for secrecy and other responsibilities might corrupt its public offerings. Critics advocate the development of commercial satellite systems. But the technological sophistication of intelligence assets may not be achievable in the private sector for many years, although the private-sector demand for surveillance technologies seems strong. Thus efforts to build bridges between the CIA and new consumers could remain important.

The U.S. military also possesses extensive resources that might be detailed to environmental policy initiatives, including technology-driving programmes, land restoration projects, treaty monitoring, and, possibly, treaty enforcement. Experiments in the 1990's with recycling technologies and ecosystem res-

toration, by different branches of the U.S. military, may serve as models for future endeavours. Discussions on using the U.S. military (or NATO or UN forces) to monitor compliance with international environmental law remain at a preliminary stage and face stiff opposition.

One of the more fascinating features of these various activities is the notable expansion of interagency communication and cooperation. It seems inevitable that addressing environmental problems will be most successful if the different types of expertise and experience spread throughout the American government are coordinated. Government departments and agencies have a history of being less than forthcoming with each other and of zealously trying to protect and expand their jurisdictions and budgets regardless of how resources might be most efficiently deployed. Concern about the environment may be breaking down some of this hostility and distrust. Intelligence agencies have signalled their intention to be more accessible to agencies that never consulted them in the past. The Departments of Energy (DoE) and Defense (DoD), together with the *Environmental Protection Agency* (EPA), signed a Memorandum of Understanding in 1996 stating that they would try to cooperate in this area.¹³ Of special importance, through the Environmental Change and Security Project, the Woodrow Wilson Centre has hosted regular meetings since 1994 that bring together diverse government officials, scholars, and representatives of environmental NGOs to discuss different aspects of environmental security.

60.4.6 Promoting Dialogue, Building Confidence, and Transferring Technology

Within American military circles there is much informal talk about the value of face-to-face encounters to relieve tensions, address fears, and improve transparency. In the 1990's, this desire created another promising approach to linking environment and security. Conferences on environmental security have provided a new context for dialogue. These can have collateral benefits insofar as they create greater awareness of the concerns, incentives, and beliefs of other countries. Throughout the 1990's, the U.S. hosted or par-

12 See for example the websites of the Office of the Deputy Undersecretary of Defense for Installations and the Environment; at: <<http://www.acq.osd.mil/ie/>> and: Defense Environmental Network & Information eXchange (DENIX); at: <<https://www.denix.osd.mil/denix/denix.html>>.

13 For a comprehensive listing of these activities, see: *Environmental Change and Security Project Reports* published annually since 1995 by the Woodrow Wilson Center in Washington, D.C.

participated in conferences and workshops on environmental themes, such as those organized by the Army War College, the Asia-Pacific Centre for Security Studies, and NATO through its Partnership for Peace programme.

60.4.7 Providing Disaster and Humanitarian Assistance

In recent years the U.S. military has been called upon to assist in natural and humanitarian disasters. The suitability of military forces for such roles has been demonstrated during responses to the 2004 South Asian Tsunami, Hurricanes Katrina and Rita in 2005, and the October 2005 Northern Pakistan earthquake. For example, in response to the December 2004 tsunami, the U.S. deployed over 18,000 military personnel to assist with search and rescue, disaster assessment and recovery operations. In times of crisis and disaster, the U.S. military will likely continue to find itself involved in helping with water and food distribution, managing population flows, and combating disease outbreaks. If it is to succeed, it will clearly require more focused training and a more robust mandate than have been the case in the past.

On this issue, it is important to remember that in many smaller countries the military is the only state resource that can be called upon to help implement and monitor state-wide policies and assist in managing disasters and other crises. Because these often have an important environmental component, some training in environmental factors may be crucial to success.

60.4.8 Environmental Peacebuilding

A new and related focus is emerging through the work of a network of U.S. scholars that includes Erika Weinthal (2002), and Ken Conca and Geoff Dabelko (2002).¹⁴ Their current research objectives are to clarify the role of environmental considerations in post-conflict peacebuilding; to define the current state of our knowledge about environment-peace linkages; to identify both the benefits and challenges of incorporating environment, sustainability, and human security into post-conflict reconstruction and development in-

itiatives; to identify environmental management strategies as a tactic for building confidence between former parties in conflict; and to identify the most pressing research and policy agendas around these questions. The principal goal is to identify the environmental conditions necessary for sustainable peace and the circumstances under which environmental initiatives can help to facilitate that goal.

To date, conventional approaches to post-conflict peacebuilding have concentrated on United Nations peacekeeper operations and civilian missions that include economic reconstruction, institutional reform and election oversight. Too often lost in this approach is a focus on efforts to foster human security and sustainability. Ignoring environmental management in post-conflict peacebuilding ignores another potential strategy for building trust and cooperation as steps towards broader peace. The core premise of this new research project and the starting point for inquiry is that overlooking considerations of environmental quality, ecosystem health, and the natural resource base from which people extract their livelihoods risks undermining any gains that may be made in the political sphere and through development-assistance initiatives. If this is correct, then it becomes necessary to explore environment-peace linkages in a deeper, more specific, and targeted way than has been done to date.

60.5 Canadian Discourse on Environmental Change and 'Human Security'

While it was a Canadian scholar, Thomas Homer-Dixon, who caught the attention of the U.S. administration in the early 1990's and whose central arguments are described above, the Canadian experience in this arena has differed significantly from that of the United States. As in the U.S., Canadian scholars fiercely debated the scarcity-conflict thesis, and this debate will not be reiterated here. Concerns about Canadian access to natural resources, environment and terrorism, greening the military, using military and intelligence assets to support environmental initiatives, and promoting dialogue by focusing on shared environmental threats have all been expressed in Canada, but with far less fanfare and intensity than in the U.S. for obvious reasons. Canada has a small military and intelligence capacity, and a much more modest role on the world stage. It is a resource rich country with a natural resource based economy, and far less concerned about its access to foreign resources.

¹⁴ The text for this subsection is based on the unpublished description of a workshop on environmental peacebuilding that was written by Ken Conca, Geoff Dabelko, Richard Matthew and Erika Weinthal. The workshop was held at Duke University on 29–30 November 2006.

Perhaps the most vibrant development in Canada during the time period under discussion has been the growing effort to link global environmental change to the concept of human security, which has moved into a central position in Canadian foreign policy and scholarship. Canadians have also made a significant contribution to the resource curse debate, and are involved in the emerging issue of environmental peacebuilding.

60.5.1 Global Environmental Change and Human Security

Canadian research on global environmental change and human security is covered in detail by Jon Barnett, Richard Matthew and Karen O'Brien (2008). Therefore, we limit ourselves to very brief comments. The concept of human security became popular with the 1994 United Nations Development Programme's Annual Report. In this report, human security "was said to have two main aspects. It means, first, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and harmful disruptions in the patterns of daily life" (UNDP 1994: 23). The report also emphasizes four key dimensions of human security: it is universal, its components are interdependent, it is easier to protect through prevention than intervention, and it is people-centred (UNDP 1994: 22). In the past 14 years, the term human security has been redefined in numerous ways and it has become central to the foreign policy paradigms of several countries, including Canada and Japan. The Canadian formulation is well-covered by the Government of Canada (<<http://www.humansecurity.gc.ca/menu-en.asp>>). The Canadian approach stresses 'freedom from fear' and its work is centred on six areas of activity: protection of civilians; conflict protection; peace operations; governance and accountability; public safety; and new policy development. In this context, the environment is scarcely mentioned let alone focal. However, during the same period that the Government of Canada developed human security as its foreign policy focus, several Canadian scholars were prominent in establishing an international project to explore linkages between global environmental change and human security. A highlight of this work was the development of a new definition of human security "as something that is achieved when and where individuals and communities have the options necessary to end, mitigate or adapt to threats to their human, environmental and social rights; have the capacity and freedom to exer-

cise these options; and actively participate in pursuing these options (GECHS Science Plan 1999). In other words, human security is a variable condition where people and communities have the capacity to manage stresses to their needs, rights, and values" (Barnett/Matthew/O'Brien 2008).

The issue, however, is a part of the focus of Liu Center for Global Issues established at the University of British Columbia and initially directed by Senator Lloyd Axworthy. One of the Center's research areas is "the connections between environmental change and human security, defined in terms of wellbeing."¹⁵

60.5.2 Environmental Peacebuilding

Canadian researchers are participating in the environmental peacebuilding initiative described above. Earlier work in this area includes the edited volume *Conserving the Peace* (Halle/Matthew/Switzer 2002), produced by the International Institute for Sustainable Development in Winnipeg.

60.5.3 The Resource Curse

Important work examining linkages among natural resource exploitation, human rights abuses and violent conflict has been carried out by Philippe LeBillon (2001, 2002, 2003a, 2003b; LeBillon/Addison/Murshed 2003; LeBillon/Khatib 2004). This work has been well-received as more empirically defended than the scarcity-conflict thesis discussed above (see chap. 83 Swatuck/Black).

60.6 Conclusion

In the U.S., research, debate and policy focused on integrating environmental concerns into 'national security' have been a small part of a larger global effort to explore linkages between various conceptions of environmental change and national well-being. It is also a rather small part of national security thinking and policy in the U.S. itself. In both contexts, it is a controversial undertaking, freighted with rhetorical and analytical tension that has mobilized scepticism and resistance from security specialists and environmentalists alike. The former fear obscuring national security planning and preparedness (Levy 1995); the latter a degradation of environmental policy and of the envi-

15 See at: <<http://www.ligi.ubc.ca/Programs/index.cfm?fuseaction=Environment>>.

ronmental movement (Deudney 1990). It is a small piece of a large picture, but a piece that has come into focus quickly, that has attracted billions of US\$ in the U.S. alone, that has garnered attention throughout the world, and that has mobilized many critics as well as supporters.

There are good reasons to be concerned with the real world effects of linking environmental change to national security. The first is the problem of blow-back. Having persuaded many security practitioners and other senior policymakers that environmental change is a serious threat, environmentalists now find themselves having to defend the value of protecting wilderness in remote, resource-rich environments such as Alaska and the Arctic Circle. For example, in 2003 and again in 2005 President Bush presented a plan for developing the *Arctic National Wildlife Refuge* (ANWR) that was rejected by a slim majority in the Senate. As of February 2007 Bush has lifted restrictions on oil and gas development in Alaska's Bristol Bay.¹⁶ The danger of framing something as a national security issue is that, once this is accepted in the U.S., it has the potential to trump any other way of framing the issue. Placed side by side, protecting the U.S. is always going to trump protecting wilderness if Congress and the public can be persuaded that such a choice needs to be made. And while this trade-off has yet to be fully accepted, incremental moves within this logic have already been taken.

A second reason for concern is that the more extreme variants of the neo-Malthusian conflict-scarcity thesis – such as the violent and anarchic world expressed by Robert Kaplan (1994) and tied to the research of Thomas Homer-Dixon (1991, 1994; chap. 20 by Homer-Dixon/Delingiannis) – may have created a perception of complex global threat that politicians and the security community can exploit. In the days after the 11 September 2001 terrorist attacks against the U.S., President Bush noted that in crafting their response his administration would not distinguish between terrorists and those who harbour them. By 2002, the Bush administration had developed a doctrine justifying the pre-emptive use of force in the war on terrorism, which was first publicly announced during the President's commencement address at West Point Academy:

For much of the last century, America's defence relied on the Cold War doctrines of deterrence and containment. In some cases, those strategies still ap-

ply. But new threats also require new thinking. Deterrence – the promise of massive retaliation against nations – means nothing against shadowy terrorist networks with no nation or citizens to defend. Containment is not possible when unbalanced dictators with weapons of mass destruction can deliver those weapons on missiles or secretly provide them to terrorist allies. We cannot defend America and our friends by hoping for the best. We cannot put our faith in the word of tyrants, who solemnly sign non-proliferation treaties, and then systemically break them. If we wait for threats to fully materialize, we will have waited too long. Homeland defence and missile defence are part of stronger security, and they're essential priorities for America. Yet the war on terror will not be won on the defensive. We must take the battle to the enemy, disrupt his plans, and confront the worst threats before they emerge. In the world we have entered, the only path to safety is the path of action. And this nation will act. Our security will require the best intelligence, to reveal threats hidden in caves and growing in laboratories. Our security will require modernizing domestic agencies such as the FBI, so they're prepared to act, and act quickly, against danger. Our security will require transforming the military you will lead – a military that must be ready to strike at a moment's notice in any dark corner of the world. And our security will require all Americans to be forward-looking and resolute, to be ready for pre-emptive action when necessary to defend our liberty and to defend our lives.¹⁷

The justification for a pre-emptive strike is similar to that provided by environmentalists for the precautionary principle – “a willingness to take action in advance of scientific proof [or] evidence of the need for the proposed action on the grounds that further delay will prove ultimately most costly to society and nature, and, in the longer term, selfish and unfair to future generations.”¹⁸

A third concern is that it is certainly not clear that linking the environment and national security has resulted in more investment in ecologically sustainable behaviour and green research. At the Earth Summit in Johannesburg there were numerous reports suggesting that progress was slower than expected or needed. It does not seem credible to even suggest

16 Announcement of this available at: <<http://www.peopleandplanet.net/doc.php?id=2947>>.

17 See at: <<http://www.whitehouse.gov/news/releases/2002/06/20020601-3.html>>.

18 Taken from the Wikipedia entry at: <http://en.wikipedia.org/wiki/Precautionary_principle>.

that, so far, linking the environment to this strand of high politics has paid a measurable dividend.

There are, however, also several reasons to be encouraged by the academic and policy activity in Canada and the United States over the past fifteen years. First, elements of the U.S. military, including the Marines and National Guard, have gradually accepted that they will have to play major roles in addressing humanitarian and natural disasters such as Hurricanes Rita and Katrina, the Indonesian tsunami and the earthquake in Kashmir, and that their efforts will be more productive if they are prepared for these types of events and able to work effectively with entities such as human rights and environmental NGOs that have expertise but cannot be forced into a traditional command hierarchy.¹⁹

Second, the direction taken by the Bush-Cheney administration has run counter to the aspirations of its predecessor, but it has opened a political space in which former Vice-President Al Gore has been able to operate with a high level of success. His documentary and book *An Inconvenient Truth*, have educated millions of Americans and others about the science of climate change, and the threat it is posing to human security.

Third, linking environmental change to national security was disturbing to many environmentalists. But one of the outgrowths of this activity has been the new research agenda examining links between the environment and peacebuilding. This is likely to be a far more comfortable association for many, as peacebuilding is not a primarily military activity but rather one that fully encompasses the human rights and development communities

Finally, the work on global environmental change and human security is creating a platform for influencing the foreign policy direction being charted by Canada and other countries such as Norway and Japan.

Ultimately, one must conclude that research and policy activities in North America have generated mixed results, but that there is great promise evident in many of the elements of this programme that have emerged recently and shifted the centre of attention towards human security and peacebuilding, and away from framing the environment as a national security issue on the grounds that it has or will become a significant cause of violent conflict.

19 These comments are based on Matthew's direct experience working with U.S. Marine Forces Pacific on planning for humanitarian and natural disasters.