Environmental Change and the New Security Agenda

Implications for Canada's security and environment

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Summary

In recent years, our traditional ideas about security have unravelled. No longer do the main threats to our security come from the massed armies of hostile neighbours—but from terrorism, epidemic disease, organized crime, conflict over natural resources and environmental degradation. The 'object' of security is not just the nation state, but also the individual. The 'idea' of security has taken on new social, economic and environmental dimensions.

Global environmental change—resource degradation, desertification, water scarcity, rising sea levels, increasingly frequent natural disasters—is already profoundly affecting economic and political stability around the world. Population growth, increasing consumption and climate change are likely to intensify these pressures. The geopolitics of the twenty-first century may well be the geopolitics of scarcity—of land, of food, of water, of energy.

Meanwhile, the terrorist attacks of 9/11 fundamentally changed our pursuit of security. National security now means more effectively dealing with failed states overseas and disrupting terrorist plots at home. Departments of foreign affairs, the domestic security agencies, the military and the intelligence services have had to evolve new tactics. Political and funding priorities have changed, borders have become less permeable, strict bio-safety measures have been introduced, new weapons are being developed, energy policy has shifted and illegal natural resources are more closely tracked.

This paper investigates how environmental change and Canadian security are interlinked. First, it attempts to chart the ways in which global environmental change (such as climate change and environmental mismanagement) affect Canada's domestic security and the welfare of Canadian interests overseas. Three particular challenges stand out: the first is the struggle for control of shipping routes across a warming Arctic; the second is the hunt for new sources of energy; and the third is environmental security in regions of diplomatic, economic and military importance to Canada.

Second, the paper analyzes the links between environment and security from the opposite direction. We assess the environmental implications of Canada's current national security focus on the prevention of terrorism. This approach to Canadian security, which we call 'the new security agenda', has been evolving in response to the growing threat of international terrorism since the early 1990s.

In a world of competing priorities and limited budgets this has inevitably brought the new security agenda into direct competition with other areas of federal policy—including environmental management. The way that Canada and its allies pursue their security can have both positive and negative consequences for the environment that must be incorporated into any cost-benefit analysis of Canadian policy; in terms of governance and regulatory impacts, the scope for effective environmental management and the direct environmental impacts of new security measures. Two aspects of the new security agenda have particular relevance for the Canadian environment: the North American quest for energy independence, and increased border security.

In essence, the environment and its management is not just a 'soft policy area'—it can also have real security implications. Nevertheless, the environment is still typically seen as an optional 'add-on' for times of peace and prosperity, to be ignored in times of stress and conflict. In a globalized world shaped by global environmental problems, this might be a dangerously short-sighted approach.

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Figures and Boxes

Acronyms and abbreviations

ANWR	Arctic National Wildlife Refuge
CBRNE	Chemical, Biological, Radiological-Nuclear and Explosive
CIDA	Canadian International Development Agency
CRTI	Canadian Research and Technology Initiative
CSIS	Canadian Security Intelligence Service
DFAIT	Department of Foreign Affairs and International Trade
DND	Department of National Defence
EC	Environment Canada
EEZ	exclusive economic zone
ENCOP	Environment and Conflicts Project
EU	European Union
G8	Group of Eight
GNP	gross national product
GDP	gross domestic product
IISD	International Institute for Sustainable Development
IPCC	Intergovernmental Panel on Climate Change
IPS	International Policy Statement
ITAC	Integrated Threat Assessment Centre
NAFO	Northwest Atlantic Fisheries Organization
NATO	North Atlantic Treaty Organization
OPEC	Organization of the Petroleum Exporting Countries
PNG	Papua New Guinea
PSC	Public Safety Canada
PRIO	International Peace Research Institute, Oslo
SARS	severe acute respiratory syndrome
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
U.S.	United States
USSR	Union of Soviet Socialist Republics

1.   The links between environmental change and security

"It is evident that many wars are fought over resources which are now becoming increasingly scarce. If we conserved our resources better, fighting over them would not then occur…so, protecting the global environment is directly related to securing peace…those of us who understand the complex concept of the environment have the burden to act. We must not tire, we must not give up, we must persist."

Hon. Professor Wangari Maathai,
2004 Nobel Peace Prize Laureate[1]

Experience tells us that conflict can be driven by natural resource degradation and scarcity, and by competition for control where resources are abundant. Ask an ecologist and a political security analyst to name the countries of gravest concern to them, and though their points of departure are different, their final lists would look remarkably similar: Afghanistan, Bangladesh, Haiti, Indonesia, Iraq, Nigeria, Africa's Great Lakes region, the Solomon Islands and Somalia, among others.[2] Indeed, the awarding of the 2004 and 2007 Nobel Peace Prizes to a Kenyan environmentalist, Professor Wangari Maathai, and Al Gore and the scientists of the Intergovernmental Panel on Climate Change (IPCC) underlines the growing relevance of environmental issues to global security.

When recently asked which issues concerned them most, Canadians listed 'the environment' and 'personal safety/national security' among their top five priorities for Canadian domestic and foreign policy.[3] But despite their shared position at the forefront of Canadian concerns, environmental problems and security threats are typically viewed as two separate domains. They are managed in isolation, by different institutions, in different ways. The 'security community' and the 'environmental community' seldom meet, do not share an institutional culture and rarely compare experiences or learn from each other.

This paper sets out to investigate how environmental change and Canadian security are interlinked. First, it attempts to chart the ways in which global environmental change (such as climate change, land degradation, environmental mismanagement and, increasingly, weather-related natural disasters) affects and will continue to affect the security of Canada domestically, and the welfare of Canadian interests overseas (page 9).

Second, the paper looks at the links between environment and security from entirely the opposite direction (page 20). We assess the environmental implications of Canada's current national security focus on the prevention of terrorism. This approach to Canadian security, which we call 'the new security agenda', has been evolving in response to the growing threat of international terrorism. Although it can be traced back to the 1985 Air India bombing, its evolution has been punctuated and propelled by a number of terrorist incidents since, most notably the attacks of September 11, 2001.

The aim of this paper is to draw attention to the two-way connections between environmental change and Canadian security. We do this with two core assertions. First, we argue that the environment and its management is not just a 'soft policy area'—it can also have real security implications. Second, we argue that the way Canada and its allies pursue their security can have both positive and negative consequences for the environment that must be incorporated into any cost-benefit analysis.

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[1] Maathai, W. (2004) The Green Belt Movement http://greenbeltmovement.org/w.php?id=59. Accessed March 2007

[2] Diamond, J. (2005) "Disasters waiting to happen," *The Guardian*, January 6

[3] According to a poll carried out by the *Globe and Mail* January 11–14, 2007, 26 per cent of Canadians say the environment is the most critical issue facing the country, up from 12 per cent in July 2006, and up from four per cent in January 2006. By contrast, health care was chosen by 18 per cent of voters, terrorism by six per cent and crime by three per cent. ("Climate concerns now top security and health," by Brian Laghi, The *Globe and Mail*, Toronto, January 26, 2007)

This paper was written with the financial support of Environment Canada—the federal department tasked with managing Canada's environment—by the International Institute for Sustainable Development (IISD), a sustainable development research organization headquartered in Winnipeg, Manitoba. It is important to note at the outset that this paper is deliberately exploratory in nature. Rather than trying to provide definitive answers to complex and politicized problems, it instead attempts to provoke debate and stimulate discussion. As such, any opinions expressed do not necessarily reflect the views or positions of Environment Canada, the Government of Canada or IISD.

The emergence of the environment and security 'movement'

'Security' is a rather vague term without a generally-agreed upon definition.[4] Traditionally, the term has been tied to the use or threat of violence, with military ('hard') power seen as central to the provision of security. This may have once made sense when conflicts took place between nation states, when territorial control was a key objective and when uniformed soldiers were the combatants.

But, in recent years, our traditional ideas about security have unravelled. No longer do the main threats to our security come from the massed armies of our hostile neighbours—but from terrorism, epidemic disease, organized crime, conflict over natural resources and environmental degradation. The 'object' of security is now not just the nation state, but also the individual. And the idea of security has taken on new social, economic and environmental dimensions. The term *human security* encompasses these concepts and was first spelled out in detail in the 1994 *Human Development Report*.[5]

Speaking at the launch of UNDP's 1997 *Human Development Report*, Dr Mahbub ul Haq succinctly expressed this new vision of human security. He argued that "[s]ecurity is increasingly interpreted as security of people, not just territory; security of individuals, not just of nations; security through development, not through arms; security of all people everywhere—in their homes, in their jobs, in their streets, in their communities, and in the environment."[6]

In this paper we consider 'insecurity' as a spectrum that begins with economic and political instability and progresses all the way to the threat or existence of violent conflict. 'Security', by contrast, does not mean stasis, or the absence of change, but political and economic transition managed peacefully by democratically-appointed institutions.

The environment and security 'movement', if it can be called that, was born from a deepening public concern in the 1960s and 1970s over environmental degradation and pollution. This growing environmental awareness resonated against the nerve-wracking backdrop of Cold War uncertainty and the real-time televised violence of the Vietnam War. The OPEC oil crisis in the 1970s fuelled the debate over the political ramifications of disputes over scarce resources and the ecological carrying-capacity of the earth. Meanwhile, the toxic chemical gas leak in Bhopal in 1984 and the 1986 nuclear meltdown of Chernobyl, to pick just two examples, graphically illustrated the environmental dangers of a modern, changing economy.

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[4] Renner, M. (2007) "Introduction to the concepts of Environmental Security and Environmental Conflict," *Inventory of Environment and Security Policies and Practices*, The Hague, Institute for Environmental Security, p. 13

[5] The 1994 *Human Development Report* defined human security as entailing seven distinct categories: 1) economic security (assured and adequate basic incomes); 2) food security (physical and affordable access to food); 3) health security; 4) environmental security; 5) personal security (physical violence); 6) community security (ethnic violence); and 7) political security (basic human rights and freedoms). United Nations Development Programme (1994) *Human Development Report 1994*, New York, Oxford University Press, p. 24

[6] Cited in Najam, A. (2003) "The Human Dimension of Environmental Insecurity: Some insights from South Asia," *ECSP Report*, Washington DC, Issue 9

Initial relief at the end of the Cold War led many to herald the dawn of a 'new world order'. This, it was believed, would be one that respected human rights and the rule of law, and one in which the United Nations would finally begin to function as originally intended by its founders. Symbolic of a renewed interest in multilateralism, the Rio Earth Summit in 1992 saw the largest ever gathering of world leaders address the big challenges of the environment and development. For perhaps the first time, it seemed that the environment had become a matter of considerable international attention.

But any premature optimism was soon dashed by images of bloody conflicts across the world, from Rwanda and Somalia to the former Yugoslavia. The inability of the international community to reach consensus on the best (or indeed any) course of action undermined confidence in the international community's supposedly new and assertive multilateralism.

In 1994, American journalist Robert Kaplan wrote "The Coming Anarchy," a widely read article that painted a bleak picture of a West African descent into endemic conflict fuelled by spiralling population growth, environmental degradation and easy access to arms. Based on early environment and security research, the future he portrayed was one of "disease, overpopulation, unprovoked crime, scarcity of resources, refugee migrations, the increasing erosion of nation-state independence and international borders, and the empowerment of private armies and drug cartels."[7] Most alarmingly, Kaplan argued this volatile and destructive mix was gaining critical mass elsewhere in the world.

The dramatic rise in intra-state conflict in the early to mid-1990s led many academics, commentators and policy-makers to search with some urgency for an explanation, often looking for answers outside of traditional models of state security. Four discernable schools of thought and study have emerged that are worth briefly sketching:

First is the 'Toronto School', the name given to the research group led by the University of Toronto's Thomas Homer-Dixon. Their research emphasizes resource scarcity, caused by environmental change and population growth, as a cause for competition and conflict. Figure 1 illustrates the progression from balance to competition to conflict. Environmental change, population growth and changing consumption patterns alter a previously stable balance of population and resources, leaving different groups in competition for the remaining scarce resources. This competition degenerates into violent conflict only in the context of institutional breakdown; that is, when different groups decide that violence is the only way they will achieve their aims. The Toronto School focused on situations where elites extend their control over productive resources (in a process the School calls 'resource capture') and displace poorer communities ('ecological marginalization'). Resource capture and ecological marginalization, they argue, may lead to conflict (as people resist marginalization) and environmental damage (as displaced people move into fragile, marginal environments)*.[8]

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[7] Kaplan, R. (1994) "The Coming Anarchy – how scarcity, crime, overpopulation, tribalism and disease are rapidly destroying the social fabric of our planet," *The Atlantic Monthly*, February, pp 44-76

[8] Homer-Dixon, T. (1999) *Environment, Scarcity, and Violence*, Princeton, Princeton University Press

Figure 1: A conceptualization of security impacts of environmental change and resource scarcity
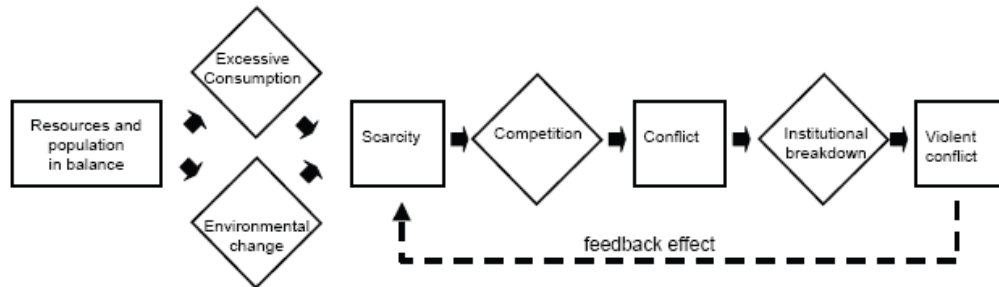
Source: Brown et al. (2007)

A second approach is proposed by the Swiss Environment and Conflicts Project (ENCOP) led by Günter Bächler. ENCOP research links environmental conflict more directly to a society's transition from a subsistence to a market economy and the adjustment costs that entails. They argue that violence is most likely to occur in remote areas, mountainous locations and grasslands—places where environmental stresses coincide with political tensions and inequitable access to resources. In many cases, conflict occurs where communities resist the expropriation of resources and the environmental damage caused by large-scale development projects.[9]

A third approach, associated with the International Peace Research Institute in Oslo (PRIO) among others, takes an entirely different starting point than the Toronto School or ENCOP. PRIO suggests that violence in many developing countries occurs when different groups attempt to gain control of *abundant* resources such as diamonds, oil and timber. This approach focuses on the economics and power-politics of natural resource exploitation, emphasizing the role of *greed* over that of *grievance*.[10] As in Figure 1, conflict erupts when institutions are unwilling or unable to mediate competition for those resources.

A fourth approach, proposed by Richard Matthew of the University of California at Irvine, argues that environmental degradation is one of the many 'network threats' that face the world today. Climate change, epidemic disease and international terrorism are examples network threats. These threats are dispersed, and so they are difficult to neutralize through negotiations or force. And although climate change could be extremely destabilizing and costly, it is hard to identify an effective mitigation strategy, since no single incentive structure (such as carbon trading) can modify the behaviour of all actors.[11]

Of course these four approaches are not mutually exclusive. Climate change, for instance, can be a network threat while at the same time making some resources more scarce (e.g., drought-reduced pasturelands) and other resources more accessible (e.g., oil under thinning Arctic ice). Each of the four approaches tends to reduce complex, nuanced realities to tidy, linear theories; in so doing, they tell only a part of the story. But there are common strands between all the theories. Each sees environmental change and management as affecting the allocation of natural resources and pitting different groups (be they individuals or states) in competition with each other. But we do not want to overstate these links. The critical transition from competition to conflict happens as a result of non-environmental factors; ideology, ethnicity and power politics. Environmental factors are rarely, if ever, the sole cause of violent conflict.

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[9] Bächler, G. (1996) "Kriegsursache Umweltzerstorung – Environmental Degradation as a Cause of War," *ENCOP – Final Report*, Vol. 2, Zurich, Center for Security Studies

[10] Gleditsch, N. P. ed. (1997) *Conflict and the Environment*, Dordrecht, Kluwer Academic Publishers

[11] Matthew, R. & B. McDonald (2004) "Networks of threats and vulnerability: lessons from environmental security research," *ECSP Report*, Issue 10, pp 36-42

An example of this would be the decade-long and bloody secessionist conflict in Bougainville, an island in the eastern part of Papua New Guinea (PNG). This conflict, which started in the late 1980s and left an estimated 20,000 people dead by 1998,[12] was originally triggered when local land-owners objected to the severe environmental degradation and inequitable local benefits coming from the island's Panguna copper mine. At the time, the mine was the largest open-cut mine in the world and responsible for nine per cent of the Papuan GNP.[13] However, the secessionist movement was also motivated by a separate sense of Bougainvillean ethnicity and language, one closer to that of the Solomon Islands than PNG. The conflict was then aggravated by the heavy-handed response of the Papuan government and atrocities committed by both sides. In other words, environmental degradation was an important factor—but it interacted with many other tensions to lead to outright violent conflict.

What is clear is that environmental 'stressors' do tend to increase the likelihood, severity and duration of conflict. To paraphrase an April 2007 report on climate change by 11 retired U.S. generals, environmental change and degradation are 'threat multipliers' that make existing problems more intractable and volatile.[14] It follows that dealing effectively with the root causes of conflict necessitates dealing with those core environmental problems. In the same vein, while no-one would seriously suggest that environmental mismanagement will realistically plunge a county like Canada into widespread, violent conflict, global environmental change does present Canada with some serious security challenges, both domestically and overseas. These challenges form the substance of the next section of this paper.

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[12] BBC News (1998) "Ceasefire agreed in Bougainville conflict," *BBC*, January 23, http://www.news.bbc.co.uk/2/hi/asia-pacific/49987.stm. Accessed July 2007

[13] Duncan, R. and Chand S., (2002) "The Economics of the Arc of Instability," *Asian-Pacific Economic Literature*, vol. 16, issue 1, pp 1-9

[14] NPR (2007) *"Climate Change Worries Military Advisers,"* http://www.npr.org/templates/story/story.php?storyId=9580815. Accessed July 2007

2.   Global environmental change and Canadian security

2.1   Previous environmental conflicts in Canada
Conflicts over natural resources and environmental management are not new to Canada. Early settlement incursions by European powers were, at their most basic level, attempts to control fertile lands, rich fisheries and the valuable fur trade. Colonial wars between French and British forces were played out on Canadian soil, culminating in the Battle of the Plains of Abraham during the Seven Years War and the secession of French territories to Britain.

The incursions also brought European settlers into direct and devastating confrontation with local indigenous populations. Brutal wars for control of the fur trade between the French and the Iroquois Nations in the mid-17th century meant widespread death and displacement for both the combatants and for other tribes in the region, such as the Huron; a clear example of the kind of resource conflicts described in PRIO's research (see Section 1).[15] More recently, the 'Turbot War' of the mid-1990s (Box 1) demonstrates the continuing potential of environmental conflicts to generate serious international tensions.

Box 1: The Turbot War
The 1995 'Turbot War' hit the headlines when Canadian gunboats shot across the bow of a Spanish trawler, the *Estai,* in a dramatic effort to impress Canadian maritime sovereignty upon foreign fishing boats. In the run-up to the incident, strict measures to control over-fishing off the Atlantic coast had failed to curb EU fish catches just outside of Canada's Grand Banks Exclusive Economic Zone (EEZ), threatening the area's fish stocks and the livelihoods of many Maritimers.[16] Brian Tobin—then Minister of Fisheries and Oceans—ordered armed patrol boats to chase the *Estai.* After being fired upon, the *Estai* released its catch and the ship's captain was arrested. [17]

While charges were later dropped and compensation paid to the *Estai's* owner, the incident brought international attention to the over-fishing of the Grand Banks. European boats, fishing near Canada's EEZ, were accused by Canadian authorities of under-reporting actual catches that were five times the legal limit.[18] To prevent further problems after the *Estai* incident, the Northwest Atlantic Fisheries Organization (NAFO) enhanced their satellite surveillance, resulting in many EU fishermen no longer finding the trans-Atlantic crossing profitable. As a result, the rate of major fishing violations dropped from 25 cases in 1994 to a single case in 1995.[19] Nevertheless, the east coast fishery effectively

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[15] The Canadian Encyclopaedia "Iroquois Wars," *The Canadian Encyclopaedia,* http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1ARTA0004062. Accessed August 2007

[16] The EU trawlers were fishing in the 'Nose' and the 'Tail' of the Grand Banks—areas of the continental shelf that were not, at the time, included in Canada's EEZ. Fishing in the area was regulated by the Northwest Atlantic Fisheries Organization (NAFO), which had set the total allowable catch (TAC) for turbot at 27,000 tonnes. Europe (a member of NAFO) objected to its quota under the TAC and ignored it, setting a self-imposed quota of 19,000 tonnes that, if combined with the catches of other states, would have severely depleted the stock. By mid-February 1995, Spanish and Portuguese ships had already taken more than the entire EU NAFO quota for the year. Canada responded by calling for a moratorium on turbot fishing until the quota disagreement was resolved. When this call was ignored by the EU, the Canadian government announced its intention to enforce the moratorium, and authorized the arrest of the *Estai*. In DeSombre, E. and J.S. Barkin (2002) "Turbot and Tempers in the North Atlantic," *Conserving the Peace*, Winnipeg, IISD, p. 336

[17] DeSombre, E. and J.S. Barkin (2002) "Turbot and Tempers in the North Atlantic," *Conserving the Peace*, Winnipeg, IISD, p. 336

[18] McCurdy, E. (1995) "Beyond quotas and mesh size," *Samudra*, April

[19] Cox, K. (1996) "Who won the Great Turbot War?," The *Globe and Mail*, Toronto, March 16

collapsed due to domestic and foreign overfishing, and an extensive and ongoing rehabilitation program has had to be implemented.[20]

2.2   Twenty-first century environmental change and Canadian security

Population growth, rapidly increasing consumption and climate change are accelerating the rate of global environmental change, increasing the pressures on our resource base. Resource degradation, desertification and water scarcity, rising sea levels and increasingly frequent natural disasters are already profoundly affecting economic and political stability around the world. Hurricane Katrina, which lashed the U.S. Gulf Coast in August 2005, proved that even the most advanced countries in the world can be rocked by extreme natural events.

Pollution, water use and land degradation are changing the distribution of food, land, water and energy resources. Already, for example, 70 per cent of the world's usable drylands[21] (approximately 3,600 million hectares) are degraded.[22] Encroaching deserts conjure up images of freshwater scarcity, which remains a daily reality for two-fifths of the planet's inhabitants; the United Nations estimates that by 2025, this fraction could be as high as two-thirds.[23]

Rapid population growth and rising consumption also drives resource scarcity. According to estimates from the United Nations Population Fund, the world's population will increase to 9.1 billion people by 2050, from today's level of 6.5 billion.[24] The greatest population increases will be concentrated in the least-developed countries, where a projected growth rate of 2.3 per cent per year will far outpace that of the more developed regions (at 0.2 per cent).[25] Should these growth rates hold, developing regions will have to sustain nearly a billion additional people in areas already struggling with poverty and resource stress.

Politicians are beginning to take note. In a major address in early 2006, British Defence Secretary John Reid warned that global climate change and dwindling natural resources are combining to increase the likelihood of violent conflict over land, water and energy. Climate change, he argued, "will make scarce resources, clean water, viable agriculture land even scarcer"—and this will "make the emergence of violent conflict more, rather than less, likely."[26] 2007 saw a significant degree of political momentum to recognize climate change as a threat to international peace and security within current international security mechanisms: on April 17, 2007, the UN Security Council held a debate on energy and climate security—the first time that the Security Council has ever discussed these issues,[27] and in October of that year the Nobel Peace Prize was awarded to Al Gore and the scientists of the Intergovernmental Panel on Climate Change.

While many resources (such as productive agricultural land and fresh water) will become scarcer, global environmental change is also opening up new supplies of natural resources (such as oil and gas in the

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[20] WWF Canada (1998) "Grand Banks, Grand Opportunity," Halifax, http://www.wwf.ca/Documents/Marine/grandbanks_factsheet.pdf. Accessed June 2007

[21] Excluding hyper-arid deserts.

[22] UNCCD (2005) "Fact Sheet" *United Nations Convention to Combat Desertification*, http://www.unccd.int/publicinfo/factsheets/pdf/factsheets-eng.pdf. Accessed June 2007, p.3

[23] United Nations (2002) "WaterYear2003: International Year Aims to Galvanize Action on Critical Water Issues," *International Year of Water*, Press Release, December

[24] UNFPA (2006) "Demographic, Social and Economic Indicators," http://www.unfpa.org/swp/2006/english/notes/indicators/e_indicator2.pdf. Accessed March 2007

[25] UNFPA (2006) *"Demographic, Social and Economic Indicators,"* http://www.unfpa.org/swp/2006/english/notes/indicators/e_indicator2.pdf. Accessed March 2007

[26] Klare, M. (2006) "The coming resource wars," *The Energy Bulletin*, March 7

[27] Walker, S. (2007) *"Britain pushing for Security Council Climate Debate,"* Reuters, March 8, http://news.yahoo.com/s/nm/20070308/sc_nm/climate_britain_united_nations_dc_3. Accessed June 2007

Arctic). It may be no exaggeration to suggest that the geopolitics of the 21st century will largely be defined by competition for, access to and control over these resources.

The next sub-sections will discuss the implications global environmental change holds for Canada's domestic security and overseas interests. Three challenges stand out: the first is the struggle for control of shipping routes across a warming Arctic; the second is the hunt for new sources of energy; and the third is environmental security in regions of diplomatic, economic and military importance to Canada.

2.3   *"As long as it's ice, nobody cares except us"*: control over the 'Canadian' Arctic

"As long as it's ice, nobody cares except us, because we hunt and fish and travel on that ice. However, the minute it starts to thaw and becomes water, then the whole world is interested."

Sheila Watt-Cloutier
Inuit activist and 2007 Nobel Peace Prize Nominee[28]

Arctic temperatures have risen at almost twice the global average over the past 100 years, reducing sea ice by 2.7 per cent per decade.[29] A 2002 study by NASA estimated that the melting of the perennial Arctic sea ice had accelerated to nine per cent per decade.[30] In August 2005, this dramatic thaw allowed a Russian ship named the *Akademik Fyodorov* became the first to reach the North Pole without the help of an icebreaker.[31] By September of that year, the Arctic sea ice had dropped to its lowest level on record. That same year, the Northern Sea route along the Siberian coast—once not navigable in its entirety—was free of ice for a month.

As the ice continues to recede, the Northwest Passage—a sea route between the Atlantic and Pacific Oceans through the Canadian Arctic archipelago—could become a commercially viable navigation channel within the next 20 years.[32] According to the IPCC's Fourth Assessment, "Sea ice is projected to shrink in both the Arctic and Antarctic under all scenarios. In some projections, Arctic late-summer sea ice disappears almost entirely by the latter part of the 21st century."[33]

The opening of the Northwest Passage, along with the North-eastern sea route along the Siberian coast, would dramatically reduce freight transport times. Ships travelling between London and Yokohama, for example, would halve their travel time by avoiding the Suez Canal. The Hudson Bay port of Churchill, Manitoba, a

Source: BBC news

[28] Krauss, C. *et al.* (2005) "Arctic Riches coming out of the cold," *The New York Times*, New York, October 10
[29] Intergovernmental Panel on Climate Change (2007) "Climate Change 2007: The Physical Science Basis. Summary for Policymakers" *Working Group I, Fourth Assessment Report*, Geneva, IPCC
[30] Ramanujan, K. (2003) "Dwindling Arctic Ice," Earth Observatory, http://earthobservatory.nasa.gov/Study/ArcticIce/. Accessed August 2007
[31] Macintyre, B. (2006) "As the Arctic ice retreats, the old Great Game begins," *The Times,* London, February 10
[32] Control Risk (2007) *RiskMap 2007*, Washington DC, Control Risk
[33] Intergovernmental Panel on Climate Change (2007) "Climate Change 2007: The Physical Science Basis. Summary for Policymakers" *Working Group I, Fourth Assessment Report*, Geneva, IPCC

strategic point along the Passage, was ice-bound for eight months of the year as recently as 1997. However, global warming could soon reduce this to only two months of the year, with the increased traffic estimated to generate up to US$100 million annually for the port's far-sighted owner, American businessman Pat Broe who bought it from the Canadian government for a token CDN$10 in 1997.[34] Shorter transport routes would mean reduced global carbon dioxide emissions, but the increased traffic and risks of spills and shipwrecks might be detrimental to the Arctic's fragile ecosystem.

Box 2: Hans Island – Canada and Denmark vie for waterfront property

It is well known in Canada that control over resources and strategically important trade routes in the Arctic has already generated tensions between Canada and Denmark. For the past three decade,s Canada and Denmark have disagreed over which country owns Hans Island, a tiny, uninhabited and inhospitable rock in the Nares Strait between Greenland (governed by Denmark) and Ellesmere Island.[35]

For years, the countries have traded strong statements about their respective ownership. But given that with land territories come EEZs with radii of up to 200 nautical miles, the value of Hans Island in terms of seabed and marine resources and control over shipping lanes counts for a great deal more than its real estate value. Such situations are becoming more commonplace, especially in the North; according to the *New York Times*, "Claims of expanded territory are being pursued the world over, but the Arctic Ocean is where experts foresee the most conflict."[36]

In 1985, 1998 and 2002 Danish naval vessels docked at the island and raised the Danish flag.[37] In the summer of 2005, Defence Minister Bill Graham planted a flag on Hans Island to claim it as Canadian territory.[38] Graham's visit was greeted with derision by the Danes, with Josef Motzfeldt, deputy leader of Greenland's home rule government, stating: "When someone unfairly tries to exercise their influence on the island, which is claimed by both Greenland/Denmark and Canada, I can't interpret the actions as anything but occupation."[39] The Danes reacted by sending a letter of protest and dispatching a patrol vessel to the island.

In the Hans case, the two countries have turned to diplomacy, and will jointly map the uncharted areas near their Arctic coastlines in an effort to diplomatically resolve the division of the resources they contain. In March 2007 it was announced that Danish and Canadian scientists would build a joint weather station on the island[40]; that station was shipped north in April 2008 and was expected to be operational in the spring of that year.[41]

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[34] Richardson, V. (2007) "Icy Port now receives very warm reception," *The Washington Times*, February 19

[35] The 1973 Agreement between the Government of the Kingdom of Denmark and the Government of Canada relating to the Delimitation of the Continental Shelf between Greenland and Canada (December 17, 1973) mapped out the maritime border between the two countries but failed to settle ownership of Hans Island. http://cnews.canoe.ca/CNEWS/Canada/2005/07/22/1143685-cp.html. Accessed May 2007

[36] Krauss, C. *et al.* (2005) "Arctic Riches coming out of the cold," *The New York Times*, New York, October 10

[37] Panetta, A. (2005) *"Hands off Hans island: Graham to Denmark"* C-News, July 22, http://cnews.canoe.ca/CNEWS/Canada/2005/07/22/1143685-cp.html. Accessed May 2007

[38] Panetta, A. (2005) *"Hands off Hans island: Graham to Denmark"* C-News, July 22, http://cnews.canoe.ca/CNEWS/Canada/2005/07/22/1143685-cp.html. Accessed May 2007

[39] CTV (2005) "Denmark calls for talks on Arctic Island," July 28, http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/1122473659796_117882859/?hub=TopStories. Accessed May 2007

[40] CBC News, (2007) "Canadian, Danish researchers to work on disputed Hans Island," March 16, http://www.cbc.ca/technology/story/2007/03/16/hans-station.html. Accessed April 2007

[41] Siku News (2008) "Weather station in the works for Hans Island," April 10, 2008, http://www.sikunews.com/art.html?artid=4651&catid=6. Accessed in 2008

Canada's Arctic policy: Gatekeepers to the Northwest Passage
In 1994, the government appointed Mary Simon as Canada's first Ambassador for Circumpolar Affairs. It then took the lead as founding chair of the Arctic Council, a high-level forum for cooperation among the eight Arctic states.[42] In 2000, the Department of Foreign Affairs and International Trade (DFAIT) released a report called *The Northern Dimension of Canada's Foreign Policy* that aimed to establish a framework to protect Canadian interests in the Arctic region as well as to promote cooperation with Canada's northern neighbours.[43] Interestingly, the report noted that transboundary environmental threats have replaced the hard military threats of the Cold War as the key challenge in the North.

"Now it has become a front line in a different way," argues the report. "The challenges mostly take the shape of transboundary environmental threats—persistent organic pollutants, climate change, nuclear waste—that are having dangerously increasing impacts on the health and vitality of human beings, northern lands, waters and animal life."[44] The document also notes, "the heterogeneity of development levels, interests and visions among circumpolar countries, coupled with the fact that the region is one of the world's richest in natural resources, may increase the potential for tension in the North."[45]

Successive Canadian governments have argued that the Northwest Passage is sovereign Canadian territory, a claim based on the fact that the Inuit peoples have lived around its waters for centuries (see Box 2). As such, they have argued that Canada should be able to enforce Canadian rules and regulations in the area, and refuse entry to any vessels which do not conform to its environmental and construction standards.

In 2003, Canada ratified the 1994 United Nations Convention on the Law of the Sea (UNCLOS), a treaty which set out legal controls for marine natural resources and pollution. The convention established the right to a maritime border that encloses an exclusive economic zone (EEZs) within 200-nautical miles of the low-water mark. It also contained a provision through which countries can apply to extend their maritime sovereignty beyond the 200-mile limit if the edge of the continental shelf extends further.

In 2006, the government dispatched 46 Canadian soldiers and reservists on a 4,500 km journey across Canada's North. Dubbed 'Operation Nunalivut' (The Land is Ours), the exercise, along with the presence of 1,500 part-time reservists in the Arctic, bolsters Canadian claims to sovereignty by proving that the country can maintain a federal presence in the region. As Lt. Col. Drew Artus, head of the Joint Task Force (North) states, "If we are going to claim this land, we'd better be able to demonstrate that we can patrol these areas."[46]

The government's position on Canadian sovereignty over the Northwest Passage stands in contrast to that of other maritime countries. The United States, for example, argues that the Northwest Passage should be open to international traffic, and that vessels need not obtain consent from Canada before travelling through the strait.[47] Acceptance of Canadian sovereignty over the strait, they argue, could set

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[42] Arctic Council member states are Canada, Denmark, Finland, Iceland, Norway, Sweden, Russia and the United States.

[43] Department of Foreign Affairs and International Trade (2000) *Northern Dimension of Canada's Foreign Policy*, http://www.dfait-maeci.gc.ca/circumpolar/pdf/ndcfp-en.pdf. Accessed April 2007, p.1

[44] Department of Foreign Affairs and International Trade (2000) *Northern Dimension of Canada's Foreign Policy*, http://www.dfait-maeci.gc.ca/circumpolar/pdf/ndcfp-en.pdf. Accessed April 2007, p.1

[45] Department of Foreign Affairs and International Trade (2000) *Northern Dimension of Canada's Foreign Policy*, http://www.dfait-maeci.gc.ca/circumpolar/pdf/ndcfp-en.pdf. Accessed April 2007, p.7

[46] Gombu, P. (2006) "Arctic trek shows Canada's sovereignty," *The Toronto Star*, Toronto, April 10

[47] VanderKlippe, N. (2006) "Northwest Passage gets a political name change," *CanWest News Service*, April 9

a dangerous precedent for other, equally strategic waterways such as those in the South China Sea.[48] When the U.S. icebreakers the *Manhattan* and the *Polar Sea* travelled through the Northwest Passage in 1969 and 1985 respectively, the American government caused an uproar in Canada by not asking for permission for the voyages to avoid implying any recognition of Canada's claim to the strait. However, the Canadian government continues to argue that it is in the interest of North American security (and the environment) for Canada to control traffic in the Passage, as opposed to allowing unfettered access for international shipping.[49]

2.4   Newly accessible resources: the hunt for food and energy

Beyond opening up strategic waterways, the warming waters of the North will open up lucrative seafood stocks as the ice recedes and cold water fish move north. The Bering Sea already yields nearly half of the U.S.'s seafood catch and a third of Russia's.[50] With climate change increasing access to the Bering, Chukchi and Beaufort Seas, fishing activity is likely to rise, and with it the value of EEZs.

Even more valuable are the Arctic's untapped oil and gas reserves, which are likely to become economically viable as a result of climate change. Given the U.S. Geological Survey estimates that a quarter of the world's undiscovered oil and gas could be located under the ice cap, the stakes are very high.[51] The Shtokman gas field in the Barents Sea gives an indication into just how valuable Arctic resources could be. The field, being developed by Russia's Gazprom for an estimated US$15 to US$20 billion, is reported to hold more than double all of Canada's gas reserves.[52] The prospect of accessing reserves like Shtokman, with between 3.2 and 3.7 trillion cubic metres of gas, is a strong incentive for all Arctic nations to expand their borders. The Beaufort Sea could be Canada's Shtokman; it contains the third largest reserve of conventional oil and gas in the country, but until now has largely been covered in year-round ice.[53]
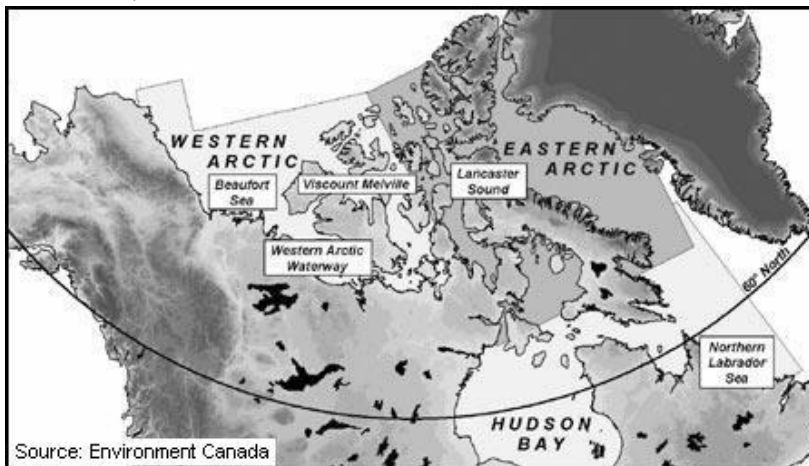
By increasing access to Arctic resources, climate change could indirectly raise tensions over their control and distribution. For example, the U.S. has not ratified UNCLOS, complicating the maritime borders which exist between it and Russia and Canada.[54] Remembering the Turbot War of 1995, in 2006 Canada launched an ambitious mapping exercise designed to define the

[48] Canadian Press (2006) *"Americans disagree over Canada's claim to historic Northwest Passage,"* November 1, http://www.uofaweb.ualberta.ca/govrel/news.cfm?story=52223. Accessed April 2007

[49] Canadian Press (2006) *"Americans disagree over Canada's claim to historic Northwest Passage,"* November 1, http://www.uofaweb.ualberta.ca/govrel/news.cfm?story=52223. Accessed April 2007

[50] Krauss, C. *et al.* (2005) "Arctic Riches coming out of the cold," *The New York Times*, New York, October 10

[51] Macintyre, B. (2006) "As the Arctic ice retreats, the old Great Game begins," *The Times*, London, February 10

[52] Krauss, C. *et al.* (2005) "Arctic Riches coming out of the cold," *The New York Times*, New York, October 10

[53] Government of Canada (2005) *"Canada's Oceans Action Plan – For Present and Future Generations,"* Ottawa, Fisheries and Oceans Canada

[54] United Nations (2007) *"Chronological list of ratifications of, accessions and successions to the Convention and the related Agreements as at 05 March 2007,"* Division for Ocean Affairs and the Law of the Sea, http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea. Accessed March 2007

Canadian maritime border. This survey will identify the outer extent of the continental shelf of the Grand Banks with the aim of cementing international recognition of Canada's control over marine resources across the continental shelf. Canada has 10 years from ratification to identify this shelf limit, which for the Arctic and Atlantic coasts represents 1,750,000 square kilometres, roughly the combined size of Manitoba, Saskatchewan and Alberta.[55]

A well publicized scramble for resources among the Arctic nations is already underway, with Canada, Russia, the U.S., Denmark and Norway all staking competing claims. Russia alone claims rights over approximately half the Arctic, and in August 2007 one of their submarines planted a flag on the seabed of the North Pole.[56] A U.S. State Department official responded by saying that Washington would not stand by in the face of what it sees as a Russian land-grab, though its position is complicated by the fact that it has not ratified UNCLOS (in May 2007 the current U.S. administration decided to support ratification but this still has to pass the Senate[57]).

Shortly after Russia's flag-planting, Denmark launched a mapping project aimed at proving that the Lomonosov Ridge—an underwater, 2,000 km mountain range extending through the North Pole—is a geological extension of Greenland.[58] If the Danes can prove that the ridge is a natural extension of their territory (Canada and Russia currently have similar claims), they would gain control of the Pole and its vast natural resources under the UNCLOS EEZs. For its part, Canada is building six to eight navy patrol ships to guard the Northwest Passage. In addition, in August 2007 Prime Minister Stephen Harper announced plans to build two military bases in the region to bolster Canada's claim to ownership: an army training centre for 100 troops is to be built in Resolute Bay; and a deep-water port will be built at Nanisivik, on Baffin Island.[59]

Enforcing Canadian Arctic sovereignty means that military activity is likely to increase in the region, from the planned fleet of armed ice breakers to increased surveillance flights. While these will inevitably have certain environmental impacts, the Canadian Forces are attempting to minimize their ecological footprint—or they are at least talking about it. The 2006 Sustainable Development Strategy produced by the Department of National Defence, for example, focuses on the military impacts on four key areas: ecosystems; pollution prevention; climate change, ozone depletion and air quality; and green procurement.[60]

Meanwhile, the environmental stability of Arctic Russia, whose natural resources and Arctic population are the region's largest, is of crucial importance to regional security. The north of Russia holds only eight per cent of the country's population, but is responsible for 20 per cent of its GDP. The collapse of the USSR had significant impacts in the North: sulphur dioxide discharges from metal and mining enterprises have damaged large areas of the Kola Peninsula; 200 nuclear reactors from decommissioned submarines await dismantling; 8,500 tonnes of highly enriched spent fuel is waiting to be reprocessed and properly stored around the Barents seas; and 500 million cubic metres of low-level radioactive waste remains to be treated.[61] Canada, with international partners, is attempting to address some of

[55] Department of Fisheries and Oceans (2006) "*Canada's New Government Moves Forward to Establish Limits of our Continental Shelf*," Government of Canada, July 20, http://www.dfo-mpo.gc.ca/media/newsrel/2006/hq-ac26_e.htm. Accessed April 2007

[56] MacAskill, E. (2007) "Canada uses military might in Arctic scramble," *The Guardian,* August 11, 2007

[57] MacAskill, E. (2007) "Canada uses military might in Arctic scramble," *The Guardian,* August 11, 2007

[58] Toronto Star (2007) "Now Danes test claim on Pole," August 11, 2007, http://www.thestar.com/News/article/245319. Accessed in 2008

[59] MacAskill, E. (2007) "Canada uses military might in Arctic scramble," *The Guardian,* August 11, 2007

[60] National Defence (2006) "Environmentally Sustainable Defence Activities," *The National Defence Sustainable Development Strategy:* 4th Iteration, Ottawa

[61] Department of Foreign Affairs and International Trade (2000) *Northern Dimension of Canada's Foreign Policy*, http://www.dfait-maeci.gc.ca/circumpolar/pdf/ndcfp-en.pdf. Accessed April 2007, p.14

these issues (see Box 3), arguing that, "a prosperous Russia is crucial to the stability of the international system, and a sustainable and prosperous North is crucial to the stability of Russia."[62]

Box 3: Munitions clean-up[63]
At the end of the Cold War, Russia's economic decline prevented them from properly dismantling a large stockpile of weapons and equipment, including a fleet of 200 nuclear submarines. Each of these submarines contains two nuclear reactors fuelled by highly-enriched uranium, which pose a serious threat both to international security and to the fragile Arctic ecosystem. Realizing this, the G8, under Canadian leadership at its 2002 meeting in Kananaskis, Alberta, decided to make dismantling these submarines a top priority. Under the auspices of the newly-created "Global Partnership Against the Spread of Weapons and Materials of Mass Destruction," the G8 countries aim to dismantle the 200 submarines by the year 2010. Working towards this goal, Canada and Russia announced in 2004 a project to dismantle three nuclear submarines per year over the course of four years. This CDN$100 million project is only a portion of Canada's overall CDN$1 billion commitment to the initiative, but does underline its common interests with Russia in protecting the delicate balance of the Arctic ecosystem and protecting its citizens from the proliferation of nuclear weapons. Considering the very strong nature of the Arctic Ocean's current, any radiation contamination would threaten not only Canada's waterways, but its aquatic resources and northern food supplies as well.

2.5   *"Security at home begins with security abroad"*: Canada in the world
So far this paper has concentrated on two traditional security concerns in Canada's Arctic backyard: control over natural resources; and recognition of national boundaries. These are very much 'old-agenda' issues with the U.S., Russia and Scandinavia, albeit intensified by recent environmental change. The issues and the responses to them revolve around establishing sovereignty by demonstrating the ability to monitor and defend parts of the Arctic with armed force.

However, if global environmental change contributes to political and economic instability elsewhere in the world, it will inevitably have a negative impact on Canadian interests overseas and, to some extent, Canada's domestic security. Such instability carries the risk of disrupted trade links, but can also impact the operations of businesses and embassies abroad: cutting off supply chains, damaging infrastructure and, most importantly, compromising the safety of staff and citizens. All of which point towards Canada's enlightened self-interest in promoting good environmental management around the world.

Two dimensions of environmental security outside Canada are of particular relevance to Canada's domestic and foreign interests: first is environmental change leading to large numbers of 'environmental refugees'; second is the demands of future environmental and natural resource-linked conflicts on international peacekeeping missions, to which Canada is historically a major contributor.

Forced environmental migration
In the mid-1990s, it was widely reported that up to 25 million people had been forced from their homes by a variety of serious environmental pressures, including pollution, land degradation, droughts and natural disasters. At the time it was declared that these 'environmental refugees', as they were called, exceeded all documented refugees from war and political persecution put together.[64] Since then, successive reports have argued that environmental change, and in particular climate change, is poised to become a major driver of population displacement.

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[62] Department of Foreign Affairs and International Trade (2000) *Northern Dimension of Canada's Foreign Policy*, http://www.dfait-maeci.gc.ca/circumpolar/pdf/ndcfp-en.pdf. Accessed April 2007, p.14

[63] Foreign Affairs and International Trade Canada (2007) *"Nuclear Submarine Dismantlement"* http://www.geo.international.gc.ca/cip-pic/library/nps-en.asp. Accessed April 2007

[64] Norman Myers (2005) *"Environmental Refugees: An emergent security issue,"* 13th Economic Forum, May 2005, Prague

Professor Norman Myers of Oxford University estimates that over the next 50 years, climate-induced sea level rise, floods and droughts could displace as many as 200 million people, a ten-fold increase from the current number of refugees and internally displaced persons in the world.[65] Trends also indicate that climate change will lead to an increase in the frequency and intensity of extreme weather events.[66] When combined with population growth and other drivers of environmental degradation (such as desertification, deforestation and resource scarcity), the potential for displacement is significant.

The European Security Strategy notes that environmental degradation and climate change are likely to force increasing numbers of people away from their homes.[67] Immigration is already a serious political issue in Western Europe and similar pressures are likely to grow in Canada. While Canada's geographic location removes it from the front lines of international environmental displacement, the country's four largest sources of current immigration—China, India, the Philippines and Pakistan—all feature regularly in analyses of regions that are vulnerable to the most serious impacts of climate change.[68] How Canada—itself a country built on immigration—responds to this challenge will help define stability and security in both Canada and the source countries (see Box 4).

Box 4: Environmental migrants from Haiti and South Asia
Haiti's history of colonization and dictatorship has left it with a severely depleted environment. Widespread deforestation, thin soil beds and erosion have driven national poverty and have contributed to a political culture of instability and violence. Canada, as the largest Francophone country in the Americas, has frequently invested aid and sent peacekeeping forces to the country (Canada has been involved in all four UN peacekeeping missions to Haiti). These links have helped make Canada an attractive emigration destination for those fleeing the violence and environmental degradation. According to Citizenship and Immigration Canada, the country accepted 2,484 Haitian migrants in 2001, a record number, and continues to maintain those high numbers with 1,719 accepted in 2005.[69]

Increasing flows of 'environmental migrants' carry with them hidden challenges. Many of the places under most climate stress—North Africa, the Middle East and South Asia—are fragile states that could present regional or even global security threats.[70] With flows of people and remittances both growing, terrorist and organized crime networks may find new ways to disperse their message and generate funding. Arguably this increases the risk of terrorist acts in Canada as well as support for terrorist activities abroad coming from elements within Canadian society.[71] In this sense, environmental degradation acts as a 'threat multiplier' by intensifying existing immigration and environmental challenges in countries already identified as regions of concern.

In South Asia, decades of civil unrest and interstate conflict have overlain worsening land degradation, unequal resource distributions and water scarcity—all of which stand to be exacerbated by environmental degradation and climate change. Two particular groups in the region are of interest to

[65] Myers, N. (2005) "Environmental Refugees: An emergent security issue," 13th Economic Forum, May 2005, Prague

[66] Munich Re Group (2004) *Annual Review: Natural Catastrophes 2004*, Munich, Münchener Rückversicherungs-Gesellschaft, p.17.

[67] European Union (2003) *A Secure Europe in a better world: European Security Strategy*, http://www.ue.eu.int/uedocs/cmsUpload/78367.pdf. Accessed June 2007

[68] McLeman, R. (2006) "Global warming's huddled masses," *Ottawa Citizen*, Ottawa, November 23

[69] Citizenship and Immigration Canada (2005) "Facts and Figures 2005" *Immigration Overview: Permanent Residents*, Ottawa, http://www.cic.gc.ca/english/pub/facts2005/permanent/15.html. Accessed June 2007

[70] McLeman, R. and B. Smit (2005) *Assessing the Security Implications of Climate Change-related Migration*, Guelph, University of Guelph

[71] McLeman, R. and B. Smit (2005) *Assessing the Security Implications of Climate Change-related Migration*, Guelph, University of Guelph

Canada: the Tamils of Sri Lanka; and the Sikhs of India. Although largely peaceful, fringe elements within both populations support armed factions with goals of secession and significant grievances against their respective states. Both also have significant transnational communities within Canada. Sikh extremists are already believed to have brought their fight to Canada with the 1985 bombing of Air India flight 182—the single worst act of terrorism in Canadian history.

Canadian forces in blue helmets

Increased conflict around the world would also trigger greater demand for expensive and dangerous peacekeeping missions. Historically Canada has been an important contributing nation to peacekeeping missions; since 1947 more than 125,000 Canadian military personnel have served in UN peacekeeping operations, constituting more than 10 per cent of the UN total.[72] Natural resources and environmental degradation have already contributed to the conflicts in Haiti (deforestation and land degradation); Sierra Leone (diamonds); the genocide in Rwanda (arguably linked in part to increasingly scarce land); and the Democratic Republic of Congo (gold, tantalum[73] and cassiterite), all of which have seen Canadian peacekeeping deployments.[74]

Beyond the central threat to Canadian servicemen and women, these peacekeeping deployments carry political risks and significant financial implications for Canada which are rarely budgeted for. In 2004–05, the full cost of peacekeeping operations was CDN$927 million.[75] The incremental costs (i.e., the additional costs for peacekeeping beyond those normally accrued) amounted to CDN$396 million. These costs fit in with the long-term trend; since 1993 defence expenses have consistently exceeded budgets, primarily as a result of such unbudgeted peacekeeping operations. In the 15 years leading up to 2005, the total incremental cost of peacekeeping—frequently in conflicts with environmental components—was CDN$4.3 billion.[76]

Preventative actions are, of course, more economically 'efficient' than reactive ones. Paul Collier, Professor of Economics at Oxford University, estimates that the cost of one conflict to a low income country is US$54 billion.[77] This represents more than 50 per cent of total aid flows in 2005 (US$106.5 billion).[78] Conflict prevention through environmental management and sustainable development therefore makes clear financial—as well as moral—sense.

The Canadian response

A series of national security documents published by successive administrations have identified some of the security implications of global environmental change. Since 1997, federal departments have been required to submit reports every three years outlining their sustainable development strategies.[79] In 2001, DFAIT released its second sustainable development strategy, called *Agenda 2003*. Moving beyond previous policies, *Agenda 2003* acknowledged that environmental degradation can create "inescapable social and security problems for the international community," and that pressures on shared natural

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[72] Dorn, W. A. (2005) "Canadian peacekeeping: proud tradition, strong future?," *Canadian Foreign Policy,* Vol. 12, No. 2, (Fall 2005), p. 7

[73] Tantalum is a mineral used in superconductors, cassiterite is a tin-rich ore.

[74] National Defence and the Canadian Forces (2007) *"Current Operations,"* http://www.forces.gc.ca/site/operations/current_ops_e.asp. Accessed May 2007

[75] Full costs include civilian and military wages, overtime and allowances, full costs for petroleum, oil and lubricants, spaces, contracted repairs and overhaul, and depreciation of equipment involved.

[76] Fetterly, R. (2006) "The Cost of Peacekeeping: Canada," *The Economics of Peace and Security Journal*, vol 1, no 2

[77] Collier, P. & Hoeffler, A. (1998) "On Economic causes of civil war," *Oxford Economic Papers*, Oxford, Vol. 50:563-73

[78] Organisation for Economic Co-operation and Development (2006) *Aid flows top USD 100 billion in 2005*, http://www.oecd.org/document/40/0,2340,en_2649_201185_36418344_1_1_1_1,00.htm. Accessed May 2007

[79] Foreign Affairs Canada (2003) http://www.international.gc.ca/trade/sd-dd//agenda2003/intro-en.asp. Accessed May 2007

systems—such as watersheds—are of increasing concern for a number of countries. In such situations, DFAIT noted that the most appropriate response may be an environmental one.[80]

Canada's first strategic framework and action plan on national security was issued in April 2004. *Securing an Open Society: Canada's National Security Policy* set out the government's approach to new and emerging national security threats.[81] On paper this meant more than simply addressing terrorism in a post-9/11 world. The document took a broad definition of security that mentioned the threat of pandemic diseases like SARS and Avian Flu, natural disasters such as Hurricane Juan in 2003, organized crime and the 2003 power blackout in Southern Ontario.[82]

But successive administrations have struggled with how to translate this broader definition of security into concrete policies. Released in April 2005 by the government of Paul Martin, *Canada's International Policy Statement: A role of pride and influence in the world* tried to tackle this. While it did not explicitly address environmental security as a goal, the International Policy Statement (IPS) did highlight what one expert refers to as the "increased complexity and inter-linkages between domestic and international dimensions of security, development, economic growth and the environment and asserts the need for comprehensive responses."[83]

The statement explicitly recognized that security in Canada is dependent on stability abroad, and that stability is threatened in many states by environmental pressures, resource scarcity, pandemic disease and urbanization.[84] It also focused on using sustainable development as a tool to prevent conflict and state collapse, and recognized that a "failure to achieve significant political, economic, social and environmental progress in the developing world will have an impact on Canada in terms of both our long-term security and our prosperity."[85] Under the IPS, CIDA was to channel aid funds to improving governance and promoting the development of failing states abroad with the rationale that such investments promote security at home; in 2004–05, Afghanistan, Haiti and Iraq were three of the top four recipients of Canadian bilateral aid. Environmental rehabilitation was to play a significant role in the development of each of these war-torn countries, and CIDA had prioritized investing in environmental management and rehabilitation as one way to try to reduce conflict. [86] With the change in government, the IPS was set aside; the document was removed from the Foreign Affairs Web site as the Conservative party chose to pursue its own foreign affairs and defence plans.[87]

But any attention paid to environmental management as a way of resolving some of the root causes of conflict and international tension runs in direct competition with the dominant theme of the post-9/11 security agenda—the threat of international terrorism. It is to this 'new security agenda' that the paper now turns.

[80] Foreign Affairs Canada (2002) "*Assessing Agenda 2000: Goal 4,*" July 29, http://www.international.gc.ca/trade/sd-dd//agenda2003/goal4-en.asp. Accessed May 2007

[81] Government of Canada (2004) *Securing an Open Society: Canada's National Security Policy*, Ottawa, Government of Canada

[82] Government of Canada (2004) *Securing an Open Society: Canada's National Security Policy*, Ottawa, Government of Canada

[83] Bernstein, J. (2006) "Profile of Canada," *Inventory of Environment and Security Policies and Practices: An overview of strategies and initiatives of selected governments, international organizations and inter-governmental organizations,* The Hague, Institute for Environmental Security

[84] Department of National Defence (2005) "Defence," *Canada's International Policy Statement: A Role of Pride and Influence in the World,* Ottawa, Government of Canada

[85] Canadian International Development Agency (2005) "Development," *Canada's International Policy Statement: A Role of Pride and Influence in the World,* Ottawa, Government of Canada

[86] Canadian International Development Agency (2005) "Development," *Canada's International Policy Statement: A Role of Pride and Influence in the World,* Ottawa, Government of Canada

[87] Ibbitson, J. (2006) "Tories file foreign policy statement in blue box," The *Globe and Mail*, August 18, 2006.

3.   The new security agenda and Canada's environment

"September 11th has fundamentally changed the way in which the United States regards its own safety and security, and it should equally affect our approach as well."

<div align="right">Paul Martin, April 2003 Foreign Policy Speech[88]</div>

The attacks of September 11, 2001, fundamentally changed the North American pursuit of security. Despite coming at the end of a succession of increasingly dramatic terrorist incidents (the bombing of U.S. embassies in Africa, the millennium bomber incident at the Canada-U.S. border and the bombing of the USS Cole), 9/11, more than any other event, drove home the idea that national security is no longer principally about maintaining large standing armies to repel invasions from other states. In fact the "war on terror" has become the defining characteristic of the post-9/11 security agenda in a way that pervades many aspects of domestic and international policy—in Canada and beyond.

Canada, of course, has not been unaffected by terrorism. Until 9/11, the 1985 bombing of Air India flight 182 was the single worst terrorist attack involving aircraft, with 280 Canadians among the 329 dead.[89] Additionally, Canada was identified by Osama bin Laden as a potential target for attack both in his 1998 fatwa against America and its allies and in a statement made on November 12, 2002.[90] Domestically, in June 2006, police raids in Toronto led to the arrest of 17 alleged members of an Islamist terrorist cell planning attacks in Southern Ontario.[91]

Since 2001, successive Canadian administrations have rethought and reworked domestic and foreign policy to tackle terrorism. We argue that this shift in threats and priorities characterizes a 'new security agenda' that is tangibly different to the way that previous Canadian administrations managed security in the 1980s and 1990s. "The difference, according to the government, lies in the fact that the threats stem from sub-national terror groups and by political instability in fragile countries, rather than from a monolithic Soviet-type menace," notes David Rudd of the Canadian Institute of Strategic Studies.[92]

This security agenda has had far-reaching impacts: in terms of government budgets, regulation and political attention. In a country of competing priorities and limited budgets this inevitably brought the new security agenda into direct competition with other areas of federal policy—including environmental management. In particular, it may have eclipsed the momentum to tackle the security implications of global environmental change more effectively. This section will attempt to analyze what the new security agenda might mean for Canada's environment—in terms of the governance and regulatory impacts, the scope for effective environmental management and the direct environmental impacts of increased security measures.

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[88] Tomlinson, B. (2003) "Directions for Canadian Foreign Policy in the Post Chrétien Era" *CCIC Briefing Paper,* Ottawa, Canadian Council for International Co-operation

[89] Rae, B. (2005) *Lessons to be Learned*, Air India Review Secretariat, Ottawa

[90] Government of Canada (2004) *Securing an Open Society: Canada's National Security Policy*, Ottawa, Government of Canada

[91] CBC (2006) "In Depth: Toronto Bomb Plot Overview" *CBC New Online*, http://www.cbc.ca/news/background/toronto-bomb-plot/index.html. Accessed May 2007

[92] Rudd, D. (2005) "Canada's new defence policy," *CISS Commentary*, April 2005

3.1   New political and financial priorities

"The world has changed since Canada's last review of its international policies a decade ago. So, too, has Canada's relationship to the world."

<div align="right">Department of Finance, Budget Plan 2004[93]</div>

The Canadian Forces' top priorities, the defence of Canada and of the North American continent, rely entirely on effective cooperation between Canada and its southern neighbour.[94] Sharing the world's longest undefended border with the world's most powerful nation, it is unsurprising that Canada's security priorities are largely in line with those of the U.S.

Nevertheless, the dramatic shift in U.S. security priorities following the 9/11 attacks presented a challenge to Canadian foreign policy. With several of the hijackers rumoured to have entered the U.S. from Canada (an allegation since disproved), the country was seen as 'soft' on American security interests.[95] After the 9/11 attacks Canada quickly re-aligned its domestic and foreign security policies to complement American strategies, in part to prove its 'loyalty' to the U.S.[96]

New agenda, new institutions

As a result of lessons learned from 9/11, the federal government created two significant new domestic security institutions. First, Public Safety Canada (PSC) was created in 2003 to coordinate all federal departments and agencies responsible for national security and emergency preparedness.[97] In effect a Canadian version of the U.S. Department of Homeland Security, the core functions of PSC are security and intelligence, policing and enforcement, correction and crime prevention, border services, immigration enforcement and emergency management.[98]

In July 2005, PSC set out to revise the 1985 *Emergency Preparedness Act*, to adapt it to the 'new risk environment'. Moving beyond 9/11 to also address the gaps evident after the SARS pandemic, the 2003 Ontario blackout and Hurricane Juan, among other events, this revision led to the development of an 'All Hazards' approach to emergency management, one concentrated largely on the protection of critical infrastructure and cyber networks.[99] Environmental protection is recognized within the PSC as an integral part of public safety, but more within the context of personal health and emergency management; the security risks posed by environmental change are not addressed.[100]

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[93] Department of Finance, Canada (2004) *"Budget Plan 2004 – The importance of Canada's Relationship to the World"* http://www.fin.gc.ca/budget04/bp/bpc4ee.htm. Accessed May 2007

[94] Department of National Defence (2005) "Defence," *Canada's International Policy Statement: A Role of Pride and Influence in the World*, Ottawa, Government of Canada, p. 1

[95] Tomlinson, B. (2003) "Directions for Canadian Foreign Policy in the Post Chrétien Era" *CCIC Briefing Paper,* Ottawa, Canadian Council for International Co-operation

[96] See, for example, Desroches, F. (2005) *"Policing in the post 9/11 era"* Royal Canadian Mounted Police Branch Research and Evaluation Branch http://dsp-psd.pwgsc.gc.ca/Collection/PS64-26-2006E.pdf. Accessed August 2007

[97] Formerly known as Public Safety and Emergency Preparedness Canada (PSEPC). Legislation for PSEPC was begun in February 2001 and legally incorporated as a federal department in 2003.

[98] Bloodworth, M. (2004) *Public policy forum on public security*, September 14, http://www.publicsafety.gc.ca/media/sp/2004/sp20040914-en.asp. Accessed May 2007

[99] Public Safety and Emergency Preparedness Canada (2005) *"Modernization of the Emergency Preparedness Act,"* Consultation Paper, Ottawa, July 2005

[100] Safe Canada (2007) *"Environmental Protection,"* Ottawa, Government of Canada, http://www.safecanada.ca/topic_e.asp?category=9. Accessed August 2007

Second, the Integrated Threat Assessment Centre (ITAC) was established in 2004 to provide comprehensive threat assessments for policy-makers.[101] The ITAC draws on the expertise and resources of a variety of government agencies and an external advisory council to create these threat assessments that are then distributed within the intelligence community and first-line responders such as the law-enforcement agencies.[102]

While most of its work is classified, the few documents which are published on the ITAC Web site indicate that it is focusing on terrorism—primarily militant Islamic terrorism—as Canada's chief security risk. Despite claims of a comprehensive approach, the process that ITAC undergoes to construct its threat assessments risks systematically underplaying the importance of environmental change in Canada's security profile. Environment Canada is not an ITAC partner organization, has no staff seconded to the centre and none of the National Security Advisory Council members have a background in environment.[103]

Sharing the pie: budgetary allocations
Canadian security institutions and policies received increased funding from late 2001 onwards. Total defence budgets have been steadily rising, both in absolute terms and as a proportion of total government expenditure. In fiscal year 2002–03, total defence expenditures were CDN$10.92 billion, which represented 6.4 per cent of government spending; by 2005–06 the budget of CDN$15.05 billion was 7.2 per cent of government spending.[104]

In the 2006 budget, the new administration outlined its five-year plan for Canadian Security—which they called the *Canada First Defence Plan*. The plan allocated an increase of CDN$5.3 billion over five years on the existing budget base to, in their words, "strengthen Canada's independent capacity to defend our national sovereignty and security."[105] This included recruiting 13,000 regular forces and 10,000 auxiliary forces, re-establishing a regular army presence in British Columbia and acquiring new equipment (particularly to enhance strategic and tactical airlift capacity) with the explicit purpose of augmenting the Canadian Forces' capacity "to protect Canada's Arctic sovereignty and security."[106] This commitment was reiterated in the 2008 budget with a long-term funding plan, beginning in 2011–12, to increase defence spending each year by two per cent (up from the current 1.5 per cent). This will inject an additional $12 billion into the Department of Defence/Canadian Forces over the next 20 years.[107]

3.2   Environmental management in a post-9/11 world

New North American security priorities have had subsequent impacts for the way that Canada manages its environment. A major strand of the U.S.'s own 'new security agenda' is increased energy independence (or 'energy security' as it has become known). In practice this means an explicit policy by

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[101] Government of Canada (2004) *Securing an Open Society: Canada's National Security Policy*, Ottawa, Government of Canada

[102] Government of Canada (2004) *Securing an Open Society: Canada's National Security Policy*, Ottawa, Government of Canada

[103] Bios of members http://www.pco-bcp.gc.ca/default.asp?Language=E&Page=ministers&Sub=DeputyPM&doc=acns-ccsn_e.htm

[104] Department of Finance Canada (2003/ 2004/ 2005/ 2006), *"Annual Financial Report of the Government of Canada"* http://www.fin.gc.ca/purl/afr-e.html. Accessed May 2007

[105] Department of Finance, Canada (2006) "Budget 2006. Building a better Canada: security," http://www.fin.gc.ca/budget06/bp/bpc3de.htm. Accessed May 2007

[106] Department of Finance, Canada (2006) "Budget 2006. Building a better Canada: security," http://www.fin.gc.ca/budget06/bp/bpc3de.htm. Accessed May 2007

[107] National Defence (2008) "Canada First Defence Strategy – long-term funding framework," *Canada First Defence Strategy*, May 12, 2008 http://www.forces.gc.ca/site/newsroom/view_news_e.asp?id=2646. Accessed in 2008

the American government to reduce U.S. dependence on unreliable overseas sources of oil and replace them with North American energy supplies.[108]

A second strand of this strategy is increased border security, principally along the U.S.-Mexican border but also the U.S.-Canadian border. The U.S. pursuit of increased energy and border security has raised concerns in Canada over their environmental consequences and their implications for existing bilateral agreements between the two countries.

The search for energy security, Part I: drilling the Arctic National Wildlife Refuge
The U.S. search for North American oil supplies reopened the debate on the merits of fossil fuel exploration in the currently closed coastal plain of the Arctic National Wildlife Refuge (ANWR), a park spanning 19.2 million acres of northeast Alaska. Located beside the largest oil field on the continent (Prudhoe Bay, responsible for eight per cent of domestic oil production[109]), ANWR's coastal plain is believed by a U.S. Geological Survey to contain up to 11.8 billion barrels of oil.[110] It is also a unique habitat and home to dozens of species of birds and mammals.[111]

Among these is the Porcupine Caribou, a herd of 125,000 caribou which migrate to the ANWR in the spring to calve before returning to their winter grounds in Canada. These winter grounds are permanently protected, and in 1987 an agreement was reached between Canada and the U.S. which called for the protection of the herd and its migration routes, and for consultation between the two countries if either were threatened.

The Canadian government argued that oil and gas development in these calving grounds will disrupt not only the herd when they are most sensitive to human disturbance, but also the other migratory wildlife in the area.[112] Any disruption would also affect the many indigenous communities in both countries who depend on the herd for food and for the survival of their traditional ways of life— particularly the Gwich'in Nation, who live inland and have few other food options. The U.S. House of Representatives approved the opening of the refuge for drilling in 2005 as part of the April 2005 Energy Bill, though the provision was later removed by the House-Senate conference committee.[113] Attempts by the House in late 2005 to open the refuge to drilling as part of the 2006 budget failed when Democrats and moderate Republicans opposed the plan and threatened to reject the budget if drilling remained an option.[114] Since gaining a majority in the Congress, Democrats in January 2007 introduced legislation to permanently protect the refuge as a wilderness.[115]

The search for energy security, Part II: Canada's oil sands and offshore reserves
With plans to drill in the ANWR currently stalled, Canada's large reserves of oil, gas and uranium and vast hydro-power potential are seen as an alternative answer to the U.S 'energy problem'. As Tony Clarke of the Polaris Institute noted in evidence to a March 2007 report of the Canadian Standing Committee on Natural Resources, "clearly, from the United States' standpoint, from Washington's

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[108] The White House (2007) *"Energy Security for the 21st Century – reliable, affordable, environmentally-sound energy"* http://www.whitehouse.gov/infocus/energy/. Accessed May 2007

[109] Gismatullin, E. (2006) "Oil surges above $76 as BP shuts Alaska field, largest in US" *Energy Bulletin,* http://www.energybulletin.net/18972.html. Accessed May 2007

[110] United States Geological Survey (1998) *"Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998, Including Economic Analysis,"* http://www.pubs.usgs.gov/fs/fs-0028-01/fs-0028-01.pdf. Accessed May 2007

[111] U.S. Fish and Wildlife Service – Alaska (2006) "Wildlife," *Arctic National Wildlife Refuge*, http://www.arctic.fws.gov/wildlife.htm. Accessed May 2007

[112] Canadian Embassy in Washington (2005) "Canada's Position on US Drilling in the ANWR" http://www.canadianembassy.org/environment/development-en.asp. Accessed May 2007

[113] Taylor, A. (2005) "House Drops Arctic Drilling From Bill," *The Washington Post*, November 10

[114] Taylor, A. (2005) "House Drops Arctic Drilling From Bill," *The Washington Post*, November 10

[115] Herbert, H.J. (2007) "New Democratic bid launched to protect ANWR," *Anchorage Daily News,* January 6

standpoint, having access to Canadian oil—certainly in terms of the potential reserves that the oil sands project—ensures a secure supply, a safe supply, and a friendly neighbour supply."[116]

In 2006, the Energy Information Administration (EIA), the statistical wing of the U.S. Department of Energy, listed Canada as having the world's second largest reserves of oil (179 billion barrels) after Saudi Arabia (264 billion barrels).[117] The vast majority of these reserves (175 billion barrels) are contained in the Athabasca Tar Sands of Alberta. Despite the vast reserves the cost of extracting the oil from the sands has historically made production from the oil sands unprofitable. However, recent high oil prices and a political 'premium' attached to reliable North American oil supplies have changed the political and economic calculation.

The investments in Athabasca are enormous, as are the potential revenues. The National Energy Board predicts that CDN$125 billion will be invested in the oil sands between 2006 and 2015.[118] The value of bitumen and synthetic crude produced between 2000 and 2020 could reach CDN$500 billion. Meanwhile, production and development of the oil sands is expected to generate approximately CDN$123 billion in revenues to the government over the same period, of which CDN$51 billion would accrue to the federal government.[119]

However, the environmental costs are also significant. Getting to the oil sands involves denuding large areas of boreal forest (potentially the size of Florida[120]), can pollute water sources and releases large amounts of greenhouse gases into the atmosphere. In fact, the tarsands project represents the largest single addition to Canada's greenhouse gas emissions.[121] Owing to the amount of energy required to extract and process the bitumen, the greenhouse gases released per barrel are approximately three times higher for the oil sands than for the production of conventional oil.[122]

Offshore, oil and gas exploration has also gathered pace; annual investment in off-shore fossil fuel exploration in Canada grew from CDN$250 million in 1995 to CDN$5 billion in 2005.[123] Those employed in the sector now count for four per cent of the overall maritime workforce, compared to historical levels of about 0.3 per cent—and the number is likely to increase.[124] Like the Athabasca tar sands, there is the potential for clear economic benefits from the exploitation of these natural resources, both to local communities and the country as a whole, but the environmental risks (in terms of marine pollution) are large.

Somewhat ironically, past greenhouse gas emissions are driving the climate change that is enabling the exploitation of more fossil fuels in the Arctic, and competition for those resources is being heightened by the drive for energy independence (and so the links between global environmental change and the new security agenda come full circle). With access to previously untapped fossil fuels reserves—such as

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[116] Richardson, Lee (2007) *"The Oil Sands – towards sustainable development: a report of the standing committee on natural resources"* House of Commons, March 2007, 39th Parliament, 1st session, p. 11

[117] EIA (2006), "International Energy Outlook, 2006," Washington, 2006, p. 28

[118] Richardson, Lee (2007) *"The Oil Sands – towards sustainable development: a report of the standing committee on natural resources"* House of Commons, March 2007, 39th Parliament, 1st session, p. 17

[119] Richardson, Lee (2007) *"The Oil Sands – towards sustainable development: a report of the standing committee on natural resources"* House of Commons, March 2007, 39th Parliament, 1st session, p. 71

[120] CBC News (2006) "High illness rate near oilsands worrisome, says Alberta health official" *CBC,* March 10

[121] Sierra Club of Canada (2005) "Feds and GNWT Urged to Come Clean," *Sierra Club of Canada*, http://www.sierraclub.ca/national/media/item.shtml?x=824. Accessed May 2007

[122] Richardson, Lee (2007) "The Oil Sands – towards sustainable development: a report of the standing committee on natural resources" House of Commons, March 2007, 39th Parliament, 1st session, p. 37

[123] Government of Canada (2005) *"Canada's Oceans Action Plan – For Present and Future Generations,"* Ottawa, Fisheries and Oceans Canada

[124] Government of Canada (2005) *Canada's Oceans Action Plan – For Present and Future Generations,* Ottawa, Fisheries and Oceans Canada

those under the ice of the Beaufort Sea—traffic, construction and pollution are likely to increase in the Arctic's fragile ecosystem. The remoteness of the region means that the impact of an environmental crisis, such as an oil spill, would be magnified; this lesson was learned by both the Exxon Valdez disaster off of Alaska's southern coast in 1989, and the March 2006 Prudhoe Bay spill off of the same state's North shore. In Prudhoe Bay, corrosion of a transit pipeline leaked one million litres of crude oil onto Alaska's North Slope, making it the area's worst spill.[125]

Border security, Part I: Guns, boats and lead on the Great Lakes

Concerns over smuggling and border security prompted the U.S. Coast Guard in 2004 to propose the mounting of machine guns on their vessels and the creation of 34 live-fire zones across the five Great Lakes to be used for ammunition exercises.[126] The machine guns, capable of firing 600 bullets per minute, were the first weapons to be mounted on Great Lakes boats since the signing of the Rush-Bagot Agreement in 1817. While believed by some to be outdated, the Agreement between the U.S. and Britain (now Canada) was implemented after the War of 1812 in an effort to limit the militarization of the Great Lakes.[127]

The proposal was protested on both sides of the border. Not only was it seen as a dangerous precedent for militarization of the lakes, but it was viewed as a threat to the human and environmental safety of the region; the ability of the Coast Guard to warn boaters and fishermen was questioned, and it was unclear what the discharge of hundreds of thousands of lead bullets could mean for the Great Lakes ecosystem.

Toronto Mayor David Miller called the proposal "totally contrary to the long history of peaceful relations and environmental cooperation between the United States and Canada on the Great Lakes."[128] The Government of Canada noted that the proposal was for law enforcement rather than the militarization of the lake so did not fall formally under the terms of the Rush-Bagot agreement.[129] Nevertheless, the public outcry led the U.S. Coast Guard to suspend exercises in early 2006. With added concerns over whether the lead discharges violated the Great Lakes Water Quality Agreement of 1972, the plan was dropped in December 2006.[130]

Border security, Part II: Some positive spin-offs too

But the new security agenda does not automatically hold universally negative impacts on the Canadian environment. Since 2001, for example, the Department of Oceans and Fisheries has received an additional CDN$7 million annually to increase the scope of their surveillance program in Canadian

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[125] BBC (2006) "Alaska hit by 'massive' oil spill," *BBC*, March 11, http://www.news.bbc.co.uk/2/hi/americas/4795866.stm. Accessed June 2007

[126] CBC (2006) "US Coast guard seeks firing ranges on the Great Lakes," September 1, 2006, http://www.cbc.ca/canada/story/2006/09/01/coast-guard060901.html. Accessed June 2007

[127] Exchange of notes between the government of Canada and the government of the United States relating to the application and the interpretation of the Rush-Bagot agreement of 1817 concerning the naval forces of the Great Lakes http://www.treaty-accord.gc.ca/ViewTreaty.asp?Treaty_ID=104963&bPrint=True&Language=1. Accessed May 2007

[128] Slevin, P. (2006) "Great Lakes Area Tries to Dodge a Bullet," *The Washington Post*, December 10, http://www.washingtonpost.com/wp-dyn/content/article/2006/12/09/AR2006120900354_pf.html. Accessed May 2007

[129] Exchange of notes between the government of Canada and the government of the United States relating to the application and the interpretation of the Rush-Bagot agreement of 1817 concerning the naval forces of the Great Lakes http://www.treaty-accord.gc.ca/ViewTreaty.asp?Treaty_ID=104963&bPrint=True&Language=1. Accessed May 2007

[130] Michigan Environment Council (2007) *"Coast Guard suspends Great Lakes live fire plan"* http://www.mecprotects.org/pr12_18_06.htm. Accessed August 2007

waters.[131] While this is supposed to augment the Canadian Forces' capacity to monitor foreign military activity off Canada's coasts, it will also gather data that may help improve the management of Canada's coastal waters. An increased presence at sea has also shown positive results in reducing over-fishing and improving compliance with the provisions of the Northwest Atlantic Fisheries Organization.[132]

The Canadian government formed the Chemical, Biological, Radiological-Nuclear and Explosive (CBRNE) Research and Technology Initiative (CRTI) in May 2002 as the federal science community's response to CBRNE terrorist threats.[133] By increasing the national capacity for responding to such threats, the government has improved its ability to react to related industrial accidents, for the CRTI includes: improved technologies for decontamination, containment and disposal of CBRNE-contaminated materials; techniques for rapidly identifying and prioritizing the decontamination and restoration needs of the environment; and techniques and equipment to identify, quantify and mitigate the spread of CBRNE agents to the environment.[134]

[131] Murray, L. (2005) *"Canada's Oceans: Maximizing Opportunities for Canadians from a Sovereignty and Security Perspective,"* Presentation to the Centre for Foreign Policy, June 10

[132] Government of Canada (2005) *Canada's Oceans Action Plan – For Present and Future Generations,* Ottawa, Fisheries and Oceans Canada, p12

[133] Government of Canada (2006) "CBRNE Research and Technology Initiative" *CRTI-IRTC,* http://www.crti.drdc-rddc.gc.ca/en/default.asp. Accessed May 2007

[134] Government of Canada (2006) "CBRNE Research and Technology Initiative" *CRTI-IRTC,* http://www.crti.drdc-rddc.gc.ca/en/default.asp. Accessed May 2007

4.   Conclusions

Since the end of the Cold War a new understanding of security has percolated into the international arena. The lessons of the past 15 years have led to more broadly defined national security priorities that include an appreciation of the role of natural resources, natural disasters and environmental management in political and economic (in)stability.[135] Increasingly, global environmental change is being recognized as a legitimate security threat—even by the more orthodox institutions of national security. Slowly, the foreign policy and security discourse is changing.

It is clear that environmental change confronts Canada with some clear national security challenges. Rising temperatures in the Arctic are redrawing the map of the region, opening new shipping routes and enabling the exploitation of once inaccessible resources. This is triggering a 'gold rush' for the resources and a land grab as countries around the Arctic Circle attempt to establish their control of the territory. But global environmental change is also generating security concerns below the Arctic Circle. In our interconnected world, the impact of environmental change worldwide has consequences for Canada's security at home and interests overseas; in terms of flows of environmental migrants, disruption to Canadian business interests and increased demands on Canada's military and aid sectors.

Canada has incorporated references to environmental security into its defence and foreign policies. Canada's Defence Policy, for its part, recognizes the reciprocal impact foreign and domestic policy can have on environmental security. Canada's Foreign Policy goals explicitly call for a deepened understanding of the interaction among the social, economic and environmental pillars of sustainable development.[136] Meanwhile CIDA has prioritized investment in environmental management and rehabilitation as one way to reduce conflict in the countries where it works.[137]

However, in terms of real life policies and practice, environmental security has been eclipsed by another 'network threat'—that of international terrorism. Although attacks by fundamentalist Islamic militants on Western targets began in the early 1990s and gathered pace through that decade, it was the events of September 11, 2001, that really brought the threat to centre stage. It is the threat of terrorism, more than any other, which has become a legitimate but central concern of early twenty-first century domestic security (to stop terrorist attacks at home) and foreign policy (to confront regimes that support or harbour terrorists).

Funding priorities have changed, military tactics have evolved and entirely new domestic institutions have been created—such as Public Safety Canada. Whether these innovations represent an 'evolution' or a 'revolution' of security policy is open to debate. Taken together though, they constitute a 'new security agenda' that is appreciably different to security policy during the Cold War and the early 1990s.

In a world of finite budgets and limited political attention, this new approach to security comes into direct competition with other areas of federal policy—including environmental management. The environment still tends to be seen as an optional 'add-on' for times of peace and prosperity, to be side-lined in times of stress and conflict. But it is clear that the way that Canada and its allies pursue their security has environmental consequences that need to be incorporated into any cost-benefit analysis of Canadian security policy. And in a globalized world increasingly shaped by global environmental change, environmental issues and security concerns are likely to become more closely linked.

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[135] Mabey, N. (2006) "Foreword," *Inventory of Environment and Security Policies and Practices*, The Hague, Institute for Environmental Security

[136] Foreign Affairs Canada (2002) *"Assessing Agenda 2000: Goal 4,"* July 29, http://www.international.gc.ca/trade/sd-dd//agenda2003/goal4-en.asp. Accessed May 2007

[137] Canadian International Development Agency (2005) "Development," *Canada's International Policy Statement: A Role of Pride and Influence in the World,* Ottawa, Government of Canada

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