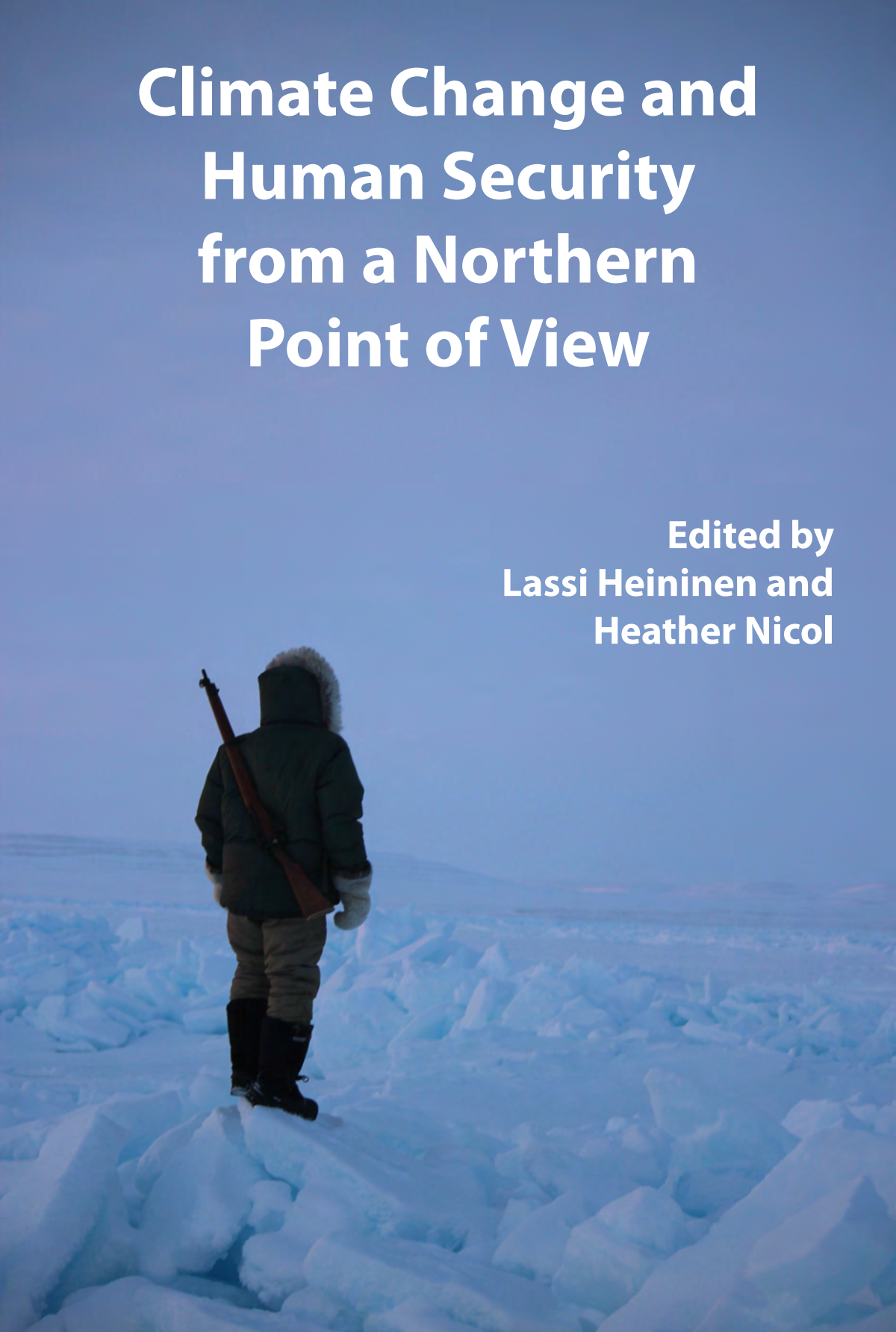
Climate Change and Human Security from a Northern Point of View

Edited by
Lassi Heininen and
Heather Nicol



Centre on Foreign Policy and Federalism
St. Jerome's University
290 Westmount Road N.
Waterloo, ON, Canada N2L 3G3
www.sju.ca/cfpf

Heininen, Lassi, and Heather Nicol, editors
Climate Change and Human Security from a Northern Point of View

Issued in electronic format.
ISBN: 978-0-9684896-3-5 (pdf)

Page design and typesetting by P. Whitney Lackenbauer
Cover design by Daniel Heidt
Distributed by the Centre on Foreign Policy and Federalism

CLIMATE CHANGE AND HUMAN SECURITY FROM A NORTHERN POINT OF VIEW

Edited by Lassi Heininen
and Heather Nicol

CFPF Centre on Foreign Policy & Federalism

2016

Acknowledgements

This book is based on the presentations of the Calotte Academy with the main theme *Climate Change Defining Human Security* held in May 2008 in Inari, Finland, Kirkenes, Norway, and Murmansk, Russia; and on the workshop *Geopolitics, Resources and Security: Asia and the Arctic in the 21st century* held in April 2011 in Ottawa, Canada. Although there has been a delay in publishing this collection, the chapters have not been updated substantively. Readers should consider them accordingly.

This book has been completed under the auspices of the University of the Arctic and the Northern Research Forum *Thematic Network on Geopolitics and Security*.

Thanks to Whitney Lackenbauer, Daniel Heidt and Corah Hodgson at the Centre on Foreign Policy & Federalism for their assistance with copy editing, layout, and publication of this volume.

Contents

Section A: Introduction

"Climate change as a new discipline for disciplining?"

Chapter 1

Climate Change as a Challenge for Human Security, and an Excellent Case for the Interplay between Science and Politics (in the North): A Brief Introduction

Lassi Heininen and Heather Nicol

Abstract

Climate change is a hot issue in the politics of the early-21st century. It has become a totalizing discourse, in the sense that it compels scientists to write reports and to develop future risk scenarios, or environmentalists to engage in climate change discourses. It has moved populations and individuals from positions of disinterest to one of genuine and shared concern about their (human) security. Even the Nobel Prize Committee was compelled to interpret climate change as a security issue. In the meantime, politicians react, lawmakers plan even stricter regulations as to what human beings are (or are not) allowed to do, citizens recognize these new regulations and modify behaviour according to them, and governments worry about their national security and sovereignty. Consequently, climate change (due to its impacts) has tremendous currency and social relevance and, because of the way in which it represents challenges to environmental security, can be understood as a risk to society, or a component of "risk society," as Ulrich Beck has defined it. We might even say that climate change has the potential to be a new "discipline for disciplining," that is to say it has potential to (re)define societal, political and legal impacts of climate change through new regulations and laws. Moreover, it has potential to encourage authoritarian solutions for climate change mitigation (since authoritarian solutions are often required in times of upheaval, since social order comes first), and to support technology-based solutions. Further, if the governing institutions have authority to use power in addressing the environment (for example through new laws), why and when would this kind of authority be needed or justified, and to what extent would the alternative interests of citizens be considered? While there are alternatives to these traditional solutions, what might come from self-sufficiency at the local level, for example, in the use of localized sustainable energy resources? And while there is no "once and for all" solution to ecological problems, an alternative way of dealing with them is to embrace a "non-disciplining" political ecology, where "solidarity" is taken literally and implemented. Climate change thus requires more and varied

human responses at global, regional, national, and local levels. Correspondingly, human responses need new kinds of global and local stages for both inter-disciplinary discourses and open political discussions between relevant stakeholders. This requires more open and comprehensive discussion between relevant stakeholders; the development of institutionalized dialogue-building. Finally, in order to achieve these goals, an interplay and interface between science and politics is necessary to plot the proper path to follow when we are facing this kind of multi-functional challenge and its societal impacts.

Introduction

During the last decades there has been an "awakening" in terms of the problem of climate change, and particularly the issue of global warming in the North. It is reminiscent of the "environmental awakening" in the 1960s-1970s (e.g. Begley 2007), and is likely to have an equal, if not greater, influence on societal norms, industrial economies, and human security. Climate change itself has strong social relevance because of its many existing and potential impacts on society at all levels and sectors, and in multiple ways (Sairinen 2007). In the early-21st century climate change is indeed a hot issue, and a "sexy" topic in politics, since the events of the Bush administration in the U.S., including the failure of the Koyoto Treaty and the politicization of climate change by Presidential Candidate Al Gore.

But the reasons for the interest are greater than U.S. politics, and indeed the driving force for the interest in climate change has been the fact that there is a significant change in the world's climate due to rapid warming of the climate system in many areas, but particularly in the circumpolar North where the effects are clearly discernable.

It is not, however, just in the Arctic region where change will unfold. Global (rapid) climate change will have many new and multiple impacts upon people, society, and ecosystems, and most probably these will be cumulative. Climate change will have a strong economic impact, due to the fact that whatever mitigation is, or is to be undertaken, will be expensive in the short-term, yet without such action, more expensive still in the long-term. The political dimensions of the problem are also significant, since it goes to the heart of human security. The growing risks of climate may engender very negative human dynamics including uncertainty, insecurity and even a culture of guilt (although the latter is possible to ignore by pointing that others are guilty, or perhaps only a factor in heightening insecurity). And with a state of uncertainty comes the possibility of public fear mongering, especially when discourses of "chaos" and "catastrophe" are implemented. All of this causes insecurity, guilt, or powerlessness and, consequently, increasing stress (Seppälä 2007). Indeed, Lisa Cockburn (this volume) discusses how such uncertainty, particularly with respect to issues of non-human agency, can

engender new paradigms of understanding with reference to the recent climate change debate.

To be more precise, it is not just climate change, but a change which is rapid and global. Further, warming of the global climate system is evident and "unequivocal" - as is concluded in a report by 600 scientists from 40 countries in the summer of 2007, which even the most sceptical opponents cannot easily deny (IPCC 2007; also Begley 2007). The global temperature of the Earth is rising at a rate which modern human society has not experienced. Although, the phenomenon *per se* is nothing new, the rapidity of the changes is new. Further, according to stronger evidence, most of the warming which has been observed over the last decades is due to human activities. With the broad variety of its impacts to human health, climate change "has been described as one of the most significant environmental challenges the world has ever faced" (Chan 2006, 3).

Climate change became a political issue when, among others, the UK government launched its report on climate change, "The Economics of Climate Change" by Nicholas Stern, saying that the globalized world economy will be threatened by a rigorous depression if CO^2 emissions are not cut. Climate change was taken as a part of the external politics of the European Union, and advanced politicians in the EU-countries took the message seriously and realized that climate change, meaning global warming, does exist – "climate change in our lifetime" (SEPA View 2006). Further, it soon became a top part of the Union's external policies—in implementation and exercise of soft power, by seeking a central role in international negotiation on climate change and to become a pioneer, or pathfinder (who finds and defines the solution), in international climate policy —in spite of the global financial crisis (e.g. Barroso 2006; European Commission 2008).

Consequently, it seems to be that climate change has become some sort of "omnipotent" factor which has stimulated scientists to make reports and create the IPCC scenarios for future changes in the world's climate, and environmentalists to assert that the phenomenon is real, and threatening. It has also caused individuals and communities, particularly in coastal regions, to be concerned about the potential impacts of climate change to their environmental and/or human security, as well as to force governments to become concerned about their sovereignty. It has become a concern of the majority, influencing even those individuals or groups who, in earlier decades, did not care about or recognize the possibility of such change, but now concern themselves with the potential danger or risks of climate change to their (human) security. It has also led to decisions and concrete plans, such as the so-called 20-20-20 decision by the European Council (a unilateral decision to decrease greenhouse gas emissions by 20 percent and to have 20 percent of its energy consumption produced by renewable energy by the year 2020); a decision of the State of California to cut its CO^2 emissions; and the Obama

Administration's proposal to the US House of Representatives to reduce greenhouse gas emissions by 17 percent by 2020.

Further, the influence and discussion of climate change has appeared to convince many corporations to begin to appreciate that these environmental changes are not good for business, and that some kind of mitigation plan should be created—or that they should take or incorporate climate change as part of a new mission (e.g. Al Gore and chair of Board of Governors of Shell, Jorma Ollila). It has led to the recognition that environmental technology / alternative energy is good business. Moreover, recognition of the potential impact of climate change has forced the UN to interpret climate change as a threat to human rights (especially in micro island states), while it has also seen the Nobel Prize Committee interpret it as a security issue and award climate change scientists for their work, and developed countries have become concerned about the phenomenon as governments worry about the impact of climate change on their national security and sovereignty. It has forced the EU to state strict unilateral regulations to cut its greenhouse gases, and the broader international community to begin the same process (UN's Conferences in NYC in September 2009 and in Bali in December 2007) through negotiations on joint activities concerning new international treaties on climate change (albeit, slowly). Finally, it has forced politicians to turn green, or even "greener" (Newsweek May 5, 2008), and to move becond a reactionary attitude, to one of action through, at the least, forward rhetoric. It has also forced governments to consider climate change as an important issue, much as sustainability was to become defined somewhat earlier; for law-makers to make new laws which respond to climate change issues. This includes stricter regulations as to what human beings are allowed and not allowed to do, and the ability to implement them, i.e. to be recognized by citizens who then behave accordingly.

This means that although climate change can be seen to be very much the outcome of human activities, there are some basic questions which affect us all. These include the question of whether climate change is a threat for human kind and, if it is, can the "Empire" strike back? Indeed, will it strike back? Is there a solution for climate change, and if so, does this involve mitigation, adaptation, or the both? And if adaptation, what kind of adaptation is available and needed, and how do we implement it? Furthermore, because adaptation deals with technology, we also need to ask about what kinds of technology will be best? Is there a proper 'risk technology' (i.e. geo-engineering) for climate change? Other questions also arise which have to do with the political, social and economic impacts of climate change. For example, does climate change make the world's coastal areas or the Northern polar areas victims who need support form outside the region? Or, does climate change provide a new vector for post-colonial influence via outsiders who contribute to the development of these regions? How does climate change influence democracy? Could the study of climate change become a new discipline for

disciplining? Or, will climate change cause problematic changes in the definition of security and security paradigms?

This chapter provides a brief introduction to current themes, discourses and discussion of climate change and human security, as well as international cooperation in the Arctic, which consist of the overall topic of this book. The introductory chapter continues with an examination of the social relevance of climate change, and then turns to discussion of climate change as an environmental and human risk, and as a factor in implementing a risk society. It then turns to an examination of the implications of climate change for human security, and speculates whether climate change is becoming a new discipline for disciplining. Finally, the introduction tries to define the preconditions for human responses which are needed, including international cooperation on environmental protection, and building a strong interface between science and politics to face the multi-functional, grand challenges and societal problems, such as climate change.

Socio-Economic Relevance of Climate Change

Climate influences the everyday life of people and their livelihoods. These livelihoods range, on a global scale, from traditional (micro-scale) livelihoods like fishing, hunting and reindeer herding (see Crate, chapter 5 and Tuisku, chapter 6), to traditional industrial livelihoods like mining, forestry and the military, to a multitude of new micro- and macro-scale livelihoods like tourism, oil and gas drilling and transportation industries. Changes in climate, whether large or subtle, often create new patterns in these livelihoods, as well as labour mobility, research, and development activities (e.g. cold-climate research and testing, and distance working). This means that the impact of climate change on economic activities and livelihoods, both at the micro- and macro-scales, will probably be significant and varied. For some, the challenges posed by climate change will provide new opportunities for research, development, and industrial applications. Indeed, there will be regional impacts which will be seen as quite positive, such as the opportunity for better access to new natural resources where the challenges of ice and snow-covered regions and sea shelves will recede. The same factors also result in fewer obstacles for military operations, the opening of new sea routes such as Canada's Northwest Passage, and more and better land for agriculture..

For others, the impact will be the end of traditional livelihoods, and loss of existing resources, both for commercial or subsistence purposes. And indeed, most of the impacts will probably be negative ones, with substantial implications for global populations, such as the melting of sea ice and glaciers creating a rising sea level, causing loss of coastline, and inland flooding. Changes to precipitation may create new drought-prone regions in areas where agriculture or forestry are of

importance. It is also likely that climate change will produce a reordering of the natural world by decreasing bio diversity of both flora and fauna through (too) rapid changes in ecosystems. Species like polar bears, the Harlequin frog and many migratory birds have recently become scarce, while coral reefs are also in danger. All of these are among the first victims of global warming (see Margolis 2006). Moreover, for those populations and industries who rely upon traditional or "country foods" the outcome of this ecological impact can spell disaster – not just in economic survival, but cultural too. This is particularly true where traditional economies in the North are linked to the resilience of cultural knowledge, language and survival methods. Indeed, negative impacts of climate change have already affected the northernmost regions of the globe, where the average temperature has been raised at almost twice the rate of the rest of the world, and as some of the chapters in this book will demonstrate, have already affected local livelihoods and lifestyles. Indeed, it is safe to say that the outcomes of global warming in the Arctic are currently more dramatic than in lower latitudes, and among the most relevant of these multi-functional impacts is the thinning and melting of multi-year sea ice (especially in the Arctic Ocean), the melting of glaciers in the region (particularly that of the glaciers in Greenland), and the thawing of permafrost, coastal erosion, and the shifting vegetation zones. Moreover, the ongoing thaw of permafrost and associated sinking and heaving has crushed buildings, industrial facilities and pipelines. It has also resulted in the evacuation of coastal villages due to associated erosion. All this means more harsh conditions for arctic animals, and harder conditions for northern peoples and societies. This warming has, along with other climactic changes, increased the challenge to survive, and to keep traditional livelihoods such as hunting, fishing and reindeer herding, alive. (ACIA 2004) However, the Arctic Climate Impact Assessment notes that this is not the end: "Arctic climate is now warming rapidly and much larger changes are projected" and the warming and its consequences will "have worldwide implications" (ACIA 2004: 10). And even though the Arctic has always experienced climate change, the current warming is still significant, "and directly correlated with industrial emissions of greenhouse gases" (Borgerson 2008).

Scientific reports on climate change are, or course, still very much based on prediction and scenarios, and there is an abundance of facts and clear evidence of climate change based upon a significant amount of growing scientific research. Climate change is expected to continue, and become more rapid than originally predicted. In September 2007, for example, the amount of multi-year sea ice present or issued from the Arctic Ocean was the smallest ever, and the Northwest Passage was, for the first time, without sea ice. Consequently, if the phenomenon of warming arctic climate continues, there will be more ice-free areas in the Arctic Ocean and its sub-seas. This phenomenon has made the circumpolar North a "laboratory," or "workshop," of the international scientific community for the study

of climate change and its impacts, and hopefully, to enable learning from these processes (ACIA 2004; AHDR 2004).

Climate change in the north will also create new and better possibilities for the utilization of existing and proposed natural resources, transportation, and other activities including military manoeuvres because of the way in which the region will be open to increasingly efficient modes of industrial transportation (eg. On Thinning Ice 2002). It is now suggested that more traffic will be present in the Northwest and Northeast Passages of the Arctic Ocean and new sea routes will emerge in the high seas of the Arctic Ocean (Nicol, this volume, Chapter). This may well see increased traffic for the transportation of raw materials and goods by big oil tankers, container ships, and even tourist vessels and passenger yachts (e.g. Gunnarsson 2005) as well as more defence and security traffic created by military ships-- for example, by patrolling and military manoeuvres. All this indicates that climate change has security implications which we should take into consideration (Heininen, this volume, chapter 13).

Putting this all together, it is clear that climate change has multi-functional impacts and although a global issue, may be the most challenging global environmental problem which the Northern regions face now and in the near future.

Climate change and risk society

Climate change has been constructed as a "threat" because of its impacts on both human and environmental security (e.g. by putting settlements and man-made environments under threat, or challenging state sovereignty). Indeed, current rapid global warming not only foreshadows or suggests what global changes might mean in the future, but it also belongs to an existing environmental category of global problems or threats, like long-range air and sea pollution or a hole in the ozone layer. While such threats have been interpreted by many in strictly scientific terms—like impact of sea ice or temperature—climate change also has a relevant security dimension, particularly, when it comes to a comprehensive understanding and definition of security in terms which go well beyond "military" or "national security". (see Nicol, chapter 12 and Heininen, chapter 13).

Why? Because climate change can be understood as part of a category of challenges to environmental security and, consequently, a threat to human security, broadly defined. As such, it poses a challenge to human systems engaged in the process of securing the survival of existing social, economic and political systems, and with the delivery of food security and environmental justice. This is not to say that climate change should always be interpreted as a threat or potential threat, however, since possibility and probability are two different measures. But it is safe to

say that the discourses of climate change are currently constructed so as to suggest that it will pose a "risk" to existing human societies. Consequently, climate change can be understood in terms of what Ulrich Beck has called an influence in the implementation of "risk society" (Beck, 1992). A risk society is derived from the modernization process itself, including the implementation of technology, industrialization and a faith in the ability of modern societies to constantly experience economic growth. But the outcome for such societies is a vastly expanded threat scenario—risk society develops in response to the risks posed to society from its own development trajectory Bear in mind that although the concept of a risk society is rather new and deals with modernization and technology, it is not a new idea entirely. But Beck suggests that the modernization process is itself a major factor in implementing the development of contemporary risk societies, and in this sense, climate change should be understood as a component or outcome of risk society itself. It is a clear example of a risk created, and interpreted through human agency, and a clear indicator of this is the fact that there are more and bigger natural catastrophes due to changing climate which are related to human agency and modern society.

In the history of human kind there are numerous examples of the collapse of societies due to natural catastrophes, rapid climate change, or the over-utilization of natural resources, or the combination of these two, like the disappearance of the Norse settlements in southern part of Greenland in the 14th century (Diamond 2001). Correspondingly, the early-21st century has witnessed impacts of climate change which include bigger natural catastrophes than in previous decades. In addition, as some of the authors in the first section of the volume discuss, there are significant amounts of long-range, and local, air, land, and sea pollution, as well as other global environmental problems like increasing competition for energy resources such as fossil fuels (including increasing demands of ever decreasing conventional oil reserves). Also of concern is the issue of bio-energy and especially bio-fuel. These issues will all have significant impacts on the globalized world economy (particularly rapidly growing economies of the BRIC countries, Brazil, Russia, India and China), and growing demands of consumption including the rapidly growing middle classes in developing countries, the deployment of technology, and the extraction impacts of resources upon the environment.

In this context climate change is a relevant factor which could potentiallycause destruction of societies and civilizations. There is indeed a keen relationship between human security and climate change and consequently, climate change cannot be understood without reference to its role in evoking global change. To some extent there is implicit popular recognition of this fact, regardless as to the state of our preparedness, or our willingness to act. We have metaphors such as "we are on a deck of Titanic, drinking wine and listening to classic music" or "we are in a car driving toward a wall at high speed" (Wuori 1995). But just as common, there

is a feeling of laissez fair: "don't worry, be happy". For many, climate change is suspect--cannot be proven, it's a "liberal" conspiracy, so no need to be worried, its just business as usual. If an impact occurs, many believe, technology will save us.

But will technology save us? Former president of India, Abdul Kalami believes, for example, that technology has a solution for climate change and poverty. In Finland, The Green Party says that there are good preconditions to develop "pure" technology for climate protection which can then become a new Finnish innovation (a sort of "climate-Nokia") and thus, climate change can be seen as an opportunity for Finland. Furthermore, if there is potential for technology that deals with the impacts of climate change, is this only another example of a faith in technology which is part of the problem, that is to say that its foundations are a faith in economic growth and indeed the driving forces of modernization? Indeed, does the fact that adaptation to climate change will require technology indicate that there may indeed be 'risk technology' for climate change, and even some sort of risk technology for the Arctic via geo-engeneering (Brainstorming meeting 2005)?

Behind all of this confidence in technology and technical solutions lies faith in the market economy, or globalized capitalism, and the certainty that economies must always be expanding. This belief in a growth-oriented economy rests upon ideas about logic and economic rationalization and can be traced back to the Enlightenment, where, it is postulated, modernization really originated (Heininen 2006). The belief that most of the problems of developing countries can be solved by Western economic growth, and not necessarily through the preconditions of democracy and civil society, is a case in point. The latter are cited as preconditions for sustainable development, which is itself intuitively opposed to conditions of global capitalism, a system which relies upon ever increasing profits and expanding resource bases and markets. A contradiction thus results which is at the root of risk society and climate change: while economic growth has been seen as a precondition for solving environmental problems, and climate change is seen to be solved by more advanced technology, thus there is no need for changes in the current polluting politics. Yet neither is sustainable, and thus climate change, especially that change associated with environmental pollution from economic and industrial development, becomes a contributor to the creation of risk society itself, and thus the risk itself becomes sustainable.

Technology then becomes imperative in mitigating the effects of climate change. But whose technology and how? Technology is "a purposeful, practical activity which involves an interaction of tools or machines (as hardware) and human beings," and includes "the application of knowledge by organizations of human beings" with "interaction between human beings and hardware" (Wilson and Heeks 2000, 403). This is not, however, enough, because all human activity, either

technical or not, has also both a strong social content and an economic content and thus deals with development.

Therefore, "knowledge by organizations of human beings" includes traditional knowledge and local knowledge in general. For example, the Saami hey-shoe can be seen as the high technology of its time, and the same is true of traditional knowledge regarding the environment, i.e. Traditional Ecological Knowledge (TEK). Similarly, Inuit understandings of ice and snow conditions serve a similar role. Thus, technology has a strong cultural content, as well as an important "how to" component (see Tuisku, chapter 6).

If this is true then would it be realistic to see the entrenchment of traditional knowledge, like that of the Inuit or Saami within schools, societies and communities? That is to say if technology will form the basis of adaptation, then the question is who are the keepers of knowledge. Moreover, how can different technologies and knowledges work together to save us? We could for example promote information and communication technology (ICT), adopt it to local systems, and connect Northern peripheries by, for example, crossing borders by using ADSL (Asymmetric Digital Subscriber Line).

Perhaps a more fundamental question is how to find and have a common language between experts on technology and its users in a society? Following from this, are there challenges of what we might call "tech-knowledgy"? For example, how to include human capital-building and regional capacity-building in technology in order to have new application of "tech-knowledgy" (Heininen 2008a: 10-11). And even further, how can we promote an interface between the issues of climate change and human development, as reflected by the gaps in knowledge raised and discussed by international Northern fora like the Arctic Human Development Report (Young and Einarsson 2004: 238-240), which is based on a close international, mostly multilateral, scientific cooperation and multidisciplinary research.

All this serves to say that clearly we need a new kind of inter-disciplinary discourse on knowledge, technology, and policies and procedures on one hand, and on the other the interplay between science, politics, and business in general. Indeed, these two, inter-relate and the interplay between science and politics, and business are much needed to create new knowledge, applications, practises, policies and programs, and new kinds of thinking. This volume attempts to make a beginning in this regard, bringing together authors from different academic and policy-making disciplines, perspectives, and countries. Its aim is to develop a cross-disciplinary analysis that assesses climate change from all perspectives, and examines the issue from the perspective of the science/political science interface. After all, faith in technology as well that of a growth-oriented economy might sound modern, but is too naïve, and discourses concerning climate change which begin and end from this

perspective, are too limited. Consequently, it might be too risky to overly trust in technology to solve problems such as pollution and climate change. An Arctic "risk" technology," for example, does not really exist yet, but it is a typical Western response (even an ideology) which privileges western knowledge, and science and modern technology.

Thus if we take the problem of climate change seriously as a real 'grand' challenge, even as a 'wicked' problem, and the criticism often levelled that spiritual and moral development of human beings has been much slower to develop than the triumph of technology, we should probably be concerned with defining the problem of climate change through interdisciplinarity and trans-sectorial processes and through the collaboration of experts in different fields.Thus, if there is no technological answer or solution as yet, then what might be considered a good idea, approache, or effective response for challenges like mitigating the impacts of, or adapting too, climate change? What might be considered proper procedures and processes to promote the existing success stories (see AHDR 2004) and create something alternative. New kinds of platforms, such as the Northern Research Forum's open assemblies, serve as new and wider (even global) international and democratic stages for an open and issue-oriented dialogue and brainstorming, and facilitate meaningful communication across perspectives and engagement with diverse arguments (Heininen 2005; also Kornprobst 2009)?

Thus we need dialogue to guarantee that new technological innovations are really needed in a society, and if so, that they will indeed be utilized effectively. This is even more the case, if we are interested in having our research findings described, summarized and discussed in the public by the scientific community, and if we are interested in having them taken into consideration, and used by decision-makers in local and international systems.

Climate change and human security

The issue of security also comes into play when discussing climate change (for more see Heininen, this volume). If security is mainly the provision of military protection for territory and citizens, then of course, climate change will not be seen as part and parcel of a security discourse. If, however, security is seen in broader terms, in terms of its outcomes or ends, rather than the means if achieving it, then climate change belongs very much in the discussion. Military security, for example, is in reality little more than a technology bundle targeted towards offensive and defensive weaponry, and cannot adequately address issues of climatic change and environmental degradation. Therefore, new technologies are required to deliver security. But we also need to realize that security is more than technology, and indeed technology cannot ensure security. Security is a state of mind which can only

be achieved by addressing the issues which make us feel insecure. If insecurity is derived from change over which military technologies have little control, then military security is no longer tantamount to total security. Security is more concerned with the protection of everyday food sources and traditional diet in the North, like caribou or fish, and environmental contaminants which find their way into food and water resources. It also means the provision of housing and education in Inuit villages, to secure local development which is sustainable and equitable.

This means that we need to think about security quite differently, if indeed we are to survive and thrive through an era of rapid environmental change. It also raises the question of emphasis—are we really interested and capable of redefining security, if not "climate security" in particular toward comprehensive security, while redefining climate change as a new discipline for disciplining, as Haila and Heininen (1995) have asked if "ecology" is or will become. The latter would include the security dimensions of climate change which require both dialogue and action. In other words, the relationship between climate change, societal risk and societal response would no longer revolve around the deployment of traditional mitigating responses, like military technology or high technology resource extraction. Rather it will require an understanding of the interplay between climate change crossing existing disciplinary boundaries, and the achievement of comprehensive security. Such an approach, by definition, needs also to examine more closely the tenants of traditional knowledge and to include and incorporate them into a broader dialogue about the meaning and means of security.

Preconditions for human responses

If climate change impacts human security or our everyday security, and if it is a result of human activities, then human responses at global, regional, national and local levels are needed. This means both mitigation and (immediate) adaptation in economic systems, politics and governance. There is, however, "no solution to ecological problems once and for all" (Haila and Heininen 1995). Therefore, with no final solution, an alternative approach is to avoid "disciplining" political ecology and make "interdisciplinary" a key word. A part of this is a shift from a "one-discipline" scientific research agenda, which has produced a lot of data and knowledge about climate change, to an interdisciplinary research agenda which would result in a better understanding of the multiple impacts of climate change in all areas. This means that on one hand, that policy-makers wouldn't think that they "own the truth" but rather allow scientists to participate in open dialogues. On the other hand, it means that within the scientific community there would be room and tolerance for scepticism and doubt, even on climate change, and room for qualitative (not just quantitative) research on the issue.

Thus, we argue, there are also alternatives to technology-oriented and modern yet "old-fashioned" solutions: for example, achieving self-sufficiency at the local level in energy consumption and production. For example, the global electricity industry dominated by "big, fossil-fuel-fired utilities" produces 67% of all electricity generation worldwide. (Newsweek, April 21-28, 2008). Yet this is not really the sort of efficiency that mitigating climate change requires. "Efficiency" is, in energy, a key word, since the average power plant converts only about 30% of its fossil fuel content into power. Much power is lost en route. In this sense, although major electrical operations like that of the James Bay in Northern Quebec are effective because of their ability to produce power which travels long distances to external markets in Canada and the U.S, on a vast system of power lines which constantly loose power and must be "recharged," these are inconsistent with self-sufficiency. Indeed, "moving into a decentralized smart grid is like shifting from analogical to digital" which means that there is no need to make big investments when you have micro-power (Ibid). The problem is that too often the global electricity industry and the centralized grid system sees the solution to energy issues as building larger. In Finland, for example, the most popular energy policy is that which encourages the building of more nuclear power plants.

There is an inherent problem, however, in that it remains only in exceptional cases that institutions and governments identify the impacts of climate change on human security and recognize them both globally and locally. The recent failure of the Koyoto treaty on environment was a case in point, as the U.S. and Canada joined forces to reject the accord. Thus, as impacts go beyond regional and local decision-making there remains a challenge on how to retain control and stability of societies and states under pressure from global (security) problems and under the conditions of uncertainty engendered by climate, or indeed other major global changes. And yet, if we agree that it matters, then the multiple impacts of climate change demand more and more unorthodox, or innovative activities at global, regional, national and local levels. The latter must emphasize immediate adaptations, for example in economics, politics, and governance, since mitigation might already be too late.

Finally, effective human response toward this societal problem needs new kinds of global and local stages for both inter-disciplinary discourses and open political discussions within civil societies, and indeed between all stakeholders. This demands on one hand, dialogue-building and dialogue across sectorial borders of society and the global community. On the other hand, it also requires when facing multi-functional challenges and societal problems, that there will be a well-developed interface between science and politics (Heininen 2005). And while "talk is cheap," it is nonetheless true that dialogue is an important part of problem definition and resolution. Dialogue will have a real influence, provided it is not like "a battle in which each participant tries to make his or her own horizon win a contest of

competing perspectives" (Kornprobst 2009: 101), and is open, deep and analytical, and the potential for such to be successful is based on whether universities and the (global) scientific community are both interested in and committed to making it happen. But since this cannot really be guaranteed, we suggest that the interplay between science and politics is not alone enough. Rather there also needs to encouragement of open discussion and equal dialogue between different actors. This in itself is a political as well as scientific activity, since in order to be productive open discussion and dialogue needs an epistemic community and knowledge-based network with "the ability to transform scientific knowledge" (Segerståhl 2008) such as the NRF.

But there is a note of caution here. Since climate change not only interprets, but even implements, risk society responses, it can become a new excuse to make more order in a society. Climate change as a new "discipline for disciplining" means to (re)define societal, political and legal impacts of climate change on one hand, through new laws with the mentality that climate change could be stopped or regulated by laws (e.g. Haila and Heininen 1995; Seppälä 2007), and on the other hand, to search for other authoritarian solutions, e.g. dealing with energy policy (Heininen, 2008b, Tiuri 2007).

Conclusions

Due to the uncertainty of climate change, it is defined in this chapter as a special case and a multi-functional challenge for the interplay between science and politics. Climate change can contribute to the development of high-technology "risk society" applications, or to a broader dialogue about the nature of human interaction with the environment, human security, and civil society. The latter demands, however, keener interaction and dialogue between traditional (environmental) knowledge and (western) science with an aim to create strong knowledge-based epistemic community (see Cockburn, chapter 3). Fortunately the interplay between science and politics is already underway in a number of academic, political, and community based gatherings with open discussion which is recognized in some experiences underway, such as the Calotte Academy and the 2011 workshop in Ottawa with valuable contributions for this volume, as well as the Northern Research Forum. All of these incorporate researchers, policy formulators, politicians and indigenous peoples from across the circumpolar North.

References

Arctic Climate Impact Assessment, 2004. Arctic Climate Impact Assessment. Policy Document. Issued by the Fourth Arctic Council Ministerial Meeting, Reykjavik, 24 November 2004.

AHDR (Arctic Human Development Report) 2004. Akureyri: Stefansson Arctic Institute. Barroso, Jose Manuel. 2006. "Euroopalla keskeinen rooli ilmastonmuutosasioissa". Helsingin Sanomat 12.11.2006, C6.

Beck, Ulrich. 1992. "From Industrial Society to Risk Society: Questions of Survival, Social Structure and Ecological Enlightenment". In: Cultural Theory and Cultural Change. Ed. by M. Featherestone. London: Sage.

Begley, Sharon. 2007. "The Truth about Denial". Newsweek, August 13, 2007, 36-43.

Borgerson, Scott G. 2008. "Arctic Meltdown: The Economic and Security Implications of Global Warming". Foreign Affairs, March/April 2008.

Brainstorming meeting. 2005. Meeting of Tarja Cronberg, Pauli Jumppanen, Markku Kivinen (host), Kari Laine, Sauli Rouhinen and Lassi Heininen (chair) on potential themes for the 4th NRF Open Meeting at Aleksanteri Institute, Helsinki in October 4th of 2005. (mimeo)

Chan, Laurie H.M. 2006. "Food safety and food security in the Canadian Arctic". Meridian Fall/Winter 2006, 1-3.

Diamond, Jared 2005. Collapse: How Societies Choose to Fail or Succeed. Allen Lane, London.

European Commission. 2008. Climate Change and International Security. Paper from the High Representative and the European Commission to the European Council. S113/08, 14 March 2008.

Gunnarsson, Björn. 2005. Geopolitics of the Northern Sea Route. A presentation at the 3rd International conference, Dynamics of Socio-economic Processes in Northern Regions, April 7-9, 2005 in Apatity, Russia. (mimeo)

Haila, Yrjö and Heininen, Lassi. 1995. Ecology: A New Discipline for Disciplining? In: Social Text 42 - Spring 1995. Duke University Press: 153-171.

Heininen, Lassi. 2008a. The Fourth NRF Open Assembly: Inter-Disciplinarity, Policy-Oriented Discourse and Analytical Dialogues on Cross-Cutting Themes – an introduction. The Borderless North – Publication of the Fourth Northern Research Forum. Lassi Heininen and Kari Laine eds.. The Thule Institute, University of Oulu and Northern Research Forum, Oulu 2008: 9-17.

Heininen, Lassi. 2008b. Climate Change causing Changes in Problem Definition on Security. Presentation at The 49th Annual Convention of ISA 2008, Section: WC51 Final Frontier or Global Laboratory? The Interface between Science and Politics in the International Polar Year (IPY) in San Francisco, USA, March 26th – 29th of 2008. (mimeo)

Heininen, Lassi. 2006. Politics or Economics defining Sustainable Development; what is the importance of Democracy (incl. dialogue-building) when trying to implement the ultimate goal? In: Resources and Sustainable Development. KINR1314 / KAES1402 Workshop, April 5-7, 2006. University of Lapland / Lapin yliopisto, 6.

Heininen, Lassi. 2005. Importance of Interplay between Science and Politics when Building New Stages. In: Negotiating Futures – States, Societies and the World. Proceedings of the International Conference, Riga, November 11-14, 2004. Eda Ansone and Ieva Zarane eds. Faculty of Social Sciences at the University of Latvia, Advanced Institute of Social and Political Research and Strategic Analysis Commission. Riga, 2005: 15-24.

IPCC 2007. Climate Change 2007: Synthesis Report. Summary for Policymakers. Intergovernmental Panel on Climate Change.

Kornprobst, Markus. 2009. International Relations as Rhetorical Discipline: Toward (Re)Newing Horizons. International Studies Review, 11(1) March 2009: 87-108.

Margolis, Mac, 2006. "Why the Frogs Are Dying". Newsweek, October 16, 2006, 48-57.

Newsweek, May 5, 2008. "Environment and Leadership": 34-54.

Newsweek, April 21-28, 2008.

On Thinning Ice: Climate Change and New Ideas about Sovereignty and Security in the Canadian Arctic. Presentation Abstracts. CARC, CMSS and CPC, 2002.

Sairinen, Rauno. 2007. (Ilmastonmuutos myllertää myös yhteiskuntaa. Helsingin Sanomat, D7 Sunnuntai-debatti. (21 October).

Segerståhl, Boris. 2008. Clusters and Networks – Tools for Northern Development, in The Borderless North – Publication of the Fourth Northern Research Forum. Lassi Heininen and Kari Laine eds., Oulu:he Thule Institute, University of Oulu and Northern Research Forum: 65-71.

SEPA View, 2006. Climate change in our lifetime. Nov/Dec 2006 33: 1-3

Seppälä, Matti 2007. Ilmasto vaihtelee – voidaanko se lailla kieltää?, Tieteessä tapahtuu, 1/2009: 50-52.

Tiuri, Martti. 2007. Ilmasto ei parane sanelupolitiikalla. Helsingin Sanomat, A2, Vieraskynä. (31 December).

Wilson, Gordon and Richard Heeks. 2000. Technology, Poverty and Development. In: Poverty and Development in the 21st Century Tim Allen and Alan Thomas eds. The Open University in association with Oxford University Press.

Wuori, Matti. 1995. Faustin uni. WSOY, Helsinki.

Young, Oran R. and Niels Einarsson. 2004. A Human Development Agenda for the Arctic: Major Findings and Emerging Issues. In: AHDR (Arctic Human Development Report) 2004. Akureyri: Stefansson Arctic Institute, Reykjavik, Iceland: 229-242.

Section B: Climate Change and Arctic Populations

Chapter 2

Climate Change & Renewable Energy Prospects in North-West Russia and Energy Security as Part of Ecological Security

Svetlana Touinova

Abstract

This chapter investigates the benefits, challenge, and opportunity of introducing renewable energy into the North-West region of Russia. Renewable energy is regarded globally as the primary means to withstand climate change. Objective evidence on the effects of climate change - and also - observations from different groups of society (such as Scientists, Governmental and Non Governmental Organisations, Ecological Societies, Businessmen, Farmers, Reindeer Herders, Home Owners) are considered. Leading scientists from the Kola Science Center, provide analysis on the potential for renewable energy (from wind, hydro, tidal, solar, biomass, and low potential thermal energy) to contribute to the current energy balance. Cooperation between scientists, Ecologists, Governmental State Economical Authorities, and Businesses was initiated by NonGovernmental Organizations within the Murmansk region in 2006. The governor has committed to a research program that will, by 2020, see 20% of the current energy balance being sourced from wind energy. This declaration has seen the formation of the Regional Program "Development of non-conventional and renewable sources of energy in Murmansk region for 2009-2015" for the further exploration of Renewable Energy opportunities in North West Russia. This chapter concludes by giving separate consideration to the energy security / ecological security implications that may arise in pursuit of such policies.

Introduction

In recent years scientists and ecologists from non-governmental organizations (NGO) around the world have concentrated their attention on finding new energy sources to cut levels of fossil fuel consumption. The dependency between climate change and fuel consumption has been proven by many scientific works. It is evident that the development of new energy sources will lead to not only better energy efficiency but also to improved ecological conditions.

The evidence of climate change cannot be ignored and is offered by different groups of society not only scientists such as climatologists, biologists and others dealing with earth sciences, but ordinary people as well, such as Reindeer herders and businessmen whose livelihoods depend on the climate and weather(http://www.gov-murman.ru/). Winters have become warmer and periods of snow cover shorter. Warmer summers with changing temperatures increase the size of insect populations and have a detrimental effect of the ability for reindeer to eat healthily and gain weight. Colder summers produce a poor harvest with a detrimental effect for people and for animals. Short winters carry the greatest impact. Rivers freeze late and thaw early, limiting the successful migration of reindeer and herders. Winter ice roads can only be used safely for shorter periods, enforcing a greater reliance on helicopters. Householders report their dwellings overheat during winter and they need electrical heaters to keep them warm during the summer, while dark gloomy winters without snow cover and snowy wet summers increase levels of depression within the population. Moreover, biologists predict climate change will threaten the biodiversity and migration of species. It can be concluded that climate change does introduce economic challenge and does threaten ecological balance.

It is still arguable whether human activity is the main contributing factor to climate change. Ecologists from NGOs supported by foreign funding promote the construction of renewable energy sites as a possible way to withstand climate change. NGOs work with representatives across many different levels (authorities, mass media, education).

Renewable energy advantages such as "availability," "stability," "reliability," "profitability" and a pollution-free environment will help to conserve fossil fuel for generations to come and will sustain increased energy demand due to rapid industry development. Scientists from the Kola Science Centre proved that wind energy could provide "energy well being" in the region by delivering stable and reliable energy supplies to the most remote districts of the region and protect customers from service disconnections (Dmitriev and Minin 2005). Moreover the successful introduction of wind energy would be able to bring about the decommissioning of the older nuclear capacity. Because of these findings, renewable energy will be a profitable sector of regional economy and will create new workplaces and income.

The principle Russian paper governing state energy policy (Russia's Energy Strategy, 2001) indicates the importance of inclusion of non-conventional renewable energy sources into the national economy. These can best be exploited in areas which are inherently rich in such resources, but are lacking in traditional fuels. (Bezrukikh and Borisov 2002). The energy economy of the Murmansk region avails itself of hydropower resources on the one hand, while on the other, is heavily dependent on nuclear fuel, coal, oil products and liquefied gas imported from afar.

The region does have a wide range of renewable energy sources, but there are difficulties for development of these sources. Some of these difficulties relate to life in sub-arctic conditions and others lie generally with energy policy.

There is disagreement of policy within Russian corporate and authority bodies with regard to climate change and ways of obtaining energy or planning human activity. There is evidence of a determined "anti renewable energy policy" and support for ongoing dependence on nuclear energy and fossil fuel. This self-interest can give rise to the potential for corruption. It is evident that North-West Russia has a huge potential for renewable energy and its development is not only economically profitable, but would also be an exemple for the political image of this country. Fortunately there is authoritative evidence demonstrating cooperation between ecologists, scientists, governmental and state economical authorities, and business in the Murmansk region today (Tuinova 2008).

The aim of this article is to put forward the prospects for renewable energy in North-West Russia's region from the point of view of adaptation and withstanding to climate change. The main content of the text is to show how the Region's energy policy and economy could be developed through non-conventional renewable energy sources and is covered from three parts. The first part of this paper considers the current and retrospective status of the energy sector to the region's economy. The second part of this paper evaluates the potential for non-conventional renewable energy sources within the region and looks at different types of non-conventional renewable energy sources (wind, small rivers, tides, solar, biomass, and low potential thermal energy) and assesses their prospective role in the region's economy. The third part of this paper provides some conclusions and recommendations for the development of non-conventional renewable energy sources principle instruments to withstand climate change. (The spelling of geographical locations and names of energy power stations mentioned here correspond to the transliteration of their spelling in original Russian spelling). The final part of this paper considers the implications of energy security as part of ecological security within North-West Russia.

Current and retrospective state of energy in Murmansk region

The Murmansk region is the furthest situated region in the North-West of Russia. When the region first started to develop its energy infrastructure in the 1930s, huge efforts were directed towards overcoming the difficulties of living in sub-arctic conditions with such a severe climate. When the subject of global climate change first started to be discussed, some Russians were relieved at the prospect of warmer temperatures. But now, as the evidence and consequence of climate change

is better understood its full effect on the area is also better understood (Barannik 2004).

The Kola Energy Grid System supports a territory of around 70,000 square kilometers with a population of over 800,000 people living in the Murmansk region (Murmanskstat 2008). The Kola Energy Grid System is comprised of energy plants and energy grids under different ownerships. They can produce more than 20 TWh per year.

The Murmansk region operational capabilities include:

- 17 hydroelectric power plants united by six cascades installed on the rivers Niva, Paz, Kovda, Tuloma, Voronya and Teriberka with a total installation capacity of 1,588.8 MW (about 43% of the combined installation capacity of all power plants in the Murmansk region).
- Kola Nuclear Power Plant with a total installation capacity of 1,760 MW, (about 47% of the combined installed capacity of all the power plants of the region.
- Two Combined Heat and Power Plants in the cities of Apatity and Murmansk and a number of thermal electric power plants of regional enterprises with total installation capacity 385 MW.

Notably, the Kola Energy System began exploiting renewable energy sources from as early as 1934 when two hydroelectric power plants (HPP - the Niva-2 and Lower Tuloma) - were connected via high-voltage power lines. Due to the lack of natural organic fuel resources within the Kola Peninsula's territory, the development of the region's energy economy relied heavily upon the construction of HPPs situated on easily accessible and strong current streams on the area's large and medium-size rivers. The annual installation energy capacity growth for that period was 50 MW (except during the wartime years between 1941 and 1945) and this was achieved primarily by means of the HPPs. It should be noted that the share of thermal electric power plants (TEPP) during that time did not exceed 10%.

The growing demand for energy dramatically increased between 1959 and 1973 and the impossibility of satisfying this demand solely using HPPs led to the decision to build new TEPPs. Following this, the share of TEPP in the region's energy system increased to 36%. At the same time, several HPPs were also undergoing development. In 1973, the first reactor of the Kola Nuclear Power Plant (NPP) went online with an operational capacity of 440 MW, and within a few years, the plant reached its full design capacity of 1,760 MW. At the same time, TEPPs increased their share in the capacity balance of the regional Energy System to 59%, and their contribution to the region's combined energy output grew to 70%. Installed capacity growth rate for the period of 1973 to 1984 was around 200 MW per year which was accounted for mostly by the nuclear power plant (Krivorutskij

and Barannik 1999). The year 1990 was a record year for energy consumption in the Murmansk region. With an annual energy output of 19.6 TWh and 2.9 TWh delivered to the neighbouring republic of Karelia, energy demand in the Murmansk region reached its highest peak of 16.6 TWh. The high reliability of the existing structure and capacity of the Kola Energy System meant that electricity could be produced at the lowest price across North-West Russia. This led to competitive capacity of regional goods on domestic and foreign markets (Barannik 2007). The last HPP's cascade built on the region's territory was a cascaded hydropower plant on the Teriberka River. Since 1984, the energy system capacity for the region has remained practically unchanged, although the region's energy policy was under constant reform during last decades. Energy reform has been more focused upon change of ownership.

Following a series of economic and political crises from the Soviet period through to contemporary Russia, the region's industrial consumption of electric power has reduced significantly. This has resulted in excess energy capacity output at the Kola Energy System which has led to a decrease in investment and new energy construction opportunity for the area.

On the one hand such a reduction in energy consumption can be regarded as a positive change for the ecology and for climate change. But on the other hand, it offers a number of policy makers a ready-made excuse to not initiate new programs for exploring nonconventional renewable energy sources for the North-West territory. It is convenient to claim "as we do not cause climate change so we do not need to pay attention and effort to solve this problem". Fortunately the North-West of Russia is rich in renewable nonconventional energy sources and also has the scientific resource to demonstrate the opportunities of these sources for the regional economy.

Renewable energy potential of Kola Peninsula

Wind energy

On the northern coast of Kola Peninsula, wind speeds reach 7 to 9m per second. The Barents Sea coast is ideally situated for the application of wind energy converts (WECs). Notably, in the coastal area, the year-to year changes of average annual wind speeds do not vary greatly, fluctuations are limited to within 5% to 8%. At the same time, the variation coefficient estimated for the regions river stream-flow rates ranges from between 15% and 20%. Thus, wind energy exposure is subject to less variability than the energy of stream-flow in the Murmansk region.

If wind turbines are built in these areas at a distance of ten wind wheel diameters from each other, then the total installed capacity of the WECs will reach around

120 million kW, while the annual power output (technical resource) will total about 360 TWh, this greatly exceeds the current regional electric power demand as mentioned above. The accessible part of these resources absolutely warrants inclusion within the peninsula's energy and economic model. Wind could supply electric power to remote decentralized consumers, such us small secluded settlements and villages, weather stations, beacons, border patrol quarters, and sites of the Russian Northern Fleet to significantly reduce high diesel fuel expenses. At the same time, the 17 HPPs with total capacity 1,600 MW (including over 1,000 MW near the shoreline of the Barents Sea) at the disposal of the Kola Energy System create unique conditions for a wide-scale wind energy application to include large-scale system-integrated wind turbine parks to support the electric and heat energy balance of the region. The favourable conditions– extensive areas with high wind potential, infrastructure availability of roads for WEC delivery, potential connection to the grid, and locations close to existing HPPs – are certainly of relevance to the Serebryanka and Teriberka HPP's cascades. It is scientifically proven that the total capacity of WECs placed here could easily reach 500 MW, more than a quarter of aging Kola NPP.

Stream-flow energy

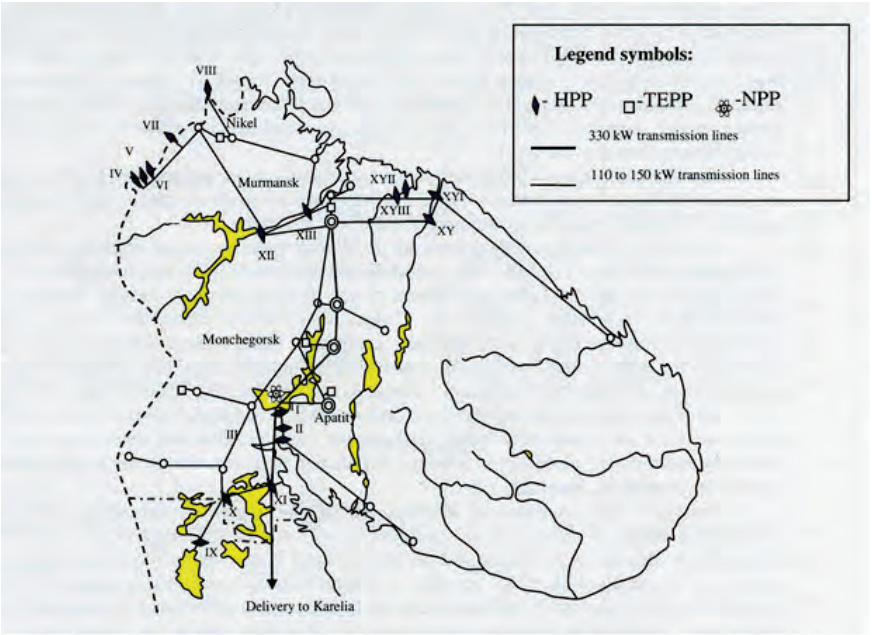
There are two ways to develop HPP in the Murmansk region: from conventional larger rivers and also from the smaller rivers of the Kola Peninsula.

Large river first priority construction sites, include HPP's cascade projects on the Iokanga River with an installed capacity of 360 MW, on the Eastern Litsa River with a combined capacity of 380 MW, and on the Ponoy River with a combined capacity of 1,800 MW. All these projects have been designed as a peak of intermediate energy sources with the specific provision made that their construction will take place after the second construction stage of the Kola NPP has been completed. As of today, judging from their project capacity and output specifications, nothing stops them being used in conjunction with major wind energy converts of commensurable capacity.

As for the stream-flow energy development from small rivers, the first priority river sites for the construction of system-integrated small-scale hydropower plants are shown on fig. 2-1.

The aspiration to obtain a cheap and independent source of electrical and thermal power drives energy suppliers to explore the potential application of local renewable energy sources, in addition to those mentioned, wind and hydro power such as: tidal energy of Barents and White Seas; solar energy; energy of biogas from waste of agricultural activity, dumps and sewage of settlements; energy of sea waves; low-potential thermal energy (heat pumping from geo and water masses).

Figure 2-1. General layout of power plants of the Murmansk region (Minin, Dmitriev, 2007)



Today, the following approach to utilization of biodegradable waste from poultry breeding and livestock is widely applied in the world. Organic waste recycles organic fertilizers and into biogas. Gas methane is done in biogas installations (methane tanks) without oxygen (anaerobic digestion). Examples of energy contents in different substrates are given in table 2-1 (Briseid 2008).

Table 2-1. Examples of energy contents in different substrates

Substrates	Energy Contents (kWh/ton)
Manure from cows	140
Manure from pigs	180
Manure from poultry	450
Manure from grass	810
Manure from fruit and vegtable waste	950
Household food waste	1.300
Restaurant food waste	1.300
Slaughterhouse waste	2.000
Pure carbohydrates dn sugar	3.900
Proteins	4.900
Fat	8.500

Regional NGO "GAIA" initiated several expeditions around the Kola peninsula to explore the perspectives for renewable energy sources and energy efficiency. During one such expedition to the Kovdor agricultural complex they found, the first on the peninsula, bio-reactors for bio-gas production, used for supplying electricity, heat and hot water for the "Leipi" complex. This first biogas installation started to produce methane in 2004.

Low-potential thermal energy

The low potential heat of the Earth core can be extracted on the basis of the heat pump principle - working like a common refrigerator's performance. The heat pump captures the low potential heat energy of the ground or water or even ambient air for heating buildings after a preliminary transformation into high potential heat. The low potential geothermal energy in Murmansk region is not utilized yet. However there is a site in the Khibiny Mountains studied by geologists and covered by a net of drilled holes. This place is a unique potential source of heat. (Kotomin and Kamenev 2008)

Thermometer devices in 20 drilled holes demonstrated an average geothermal gradient 2.58oC on each 38.8m of depth. In most of these drilled holes can be seen a temperature line growing from +5oC on the 200m depth to +20oC on 800m depth. Such abnormally high thermo generation is not typical for the rest of the peninsula.

There are prerequisites for development of this renewable non-conventional source of energy. In the case here, there are huge mining complexes and, situated nearby, a satellite city with a high population density. Clearly, there is potential demand for heat energy in the cold climate above the Polar Circle sited near a unique source of thermal heat.

Extensive study of the ground's thermal features is essential before beginning mining exploration. On the territory of Kola Peninsula there are plans for new mine extractions and the earlier research from the company geologists indicate the possibility of new sources of geothermal heat being identified in the region.

Tidal energy of Barents and White Seas

Research on the possibility of harvesting tidal energy was carried out in Russia by Lev Bernstein beginning in 1938 (Bernstein 1987). The most significant technical tidal energy resources of the coastline of Kola peninsula are shown in table 2-2. The first Russian Tidal Power Plants (TPP) were situated in Kislaya Bay since 1968. Two TPPs may also be placed in Kola and Lumbovsky bays. The biggest tidal recourse is concentrated in Mezen neck.

Table 2-2. Technical tidal energy resources of the Barents and White seas

TPP	Tidal height,m	Basin area, km²	Installed capacity, MW Annual energy output, (million kWh)
Kislaya	2,30	1,1	0,4
Kola	2,36	4,9	40,0
Lumbovsky	4,20	92,0	670,0
Mezen	5,66	2330,0	15200,0

Energy efficiency and economy studies have shown that economically, tidal energy is more promising when using medium and large-scale TPP as these reduce specific fixed costs. Moreover the larger the TPP, the lower the unit costs derived from smoothing out the fluctuations in the TPP's energy conversion. The economic effect improves significantly if the energy from TPP (cycling from daily and monthly variations) is transformed into guaranteed supply energy with help of HPP of pumped-storage power plants. These were proven by engineering and feasibility research.

Energy of sea waves

The efforts to evaluate wind-induced wave parameters and the pattern of their variation, as well as research on potential impact of wave energy installations on the environment and shoreline erosion formation, and interaction with shipping were intensified at the beginning of the 1970's (Volshanik et. al.1983).

Renewable wave power is only part of full wave power. There are different opinions on the proportion. Some calculations show that for the Barents Sea, renewable wave power reaches 58.5 kW per one square kilometers of the basin (Matushevsky, 1982).

Table 2-3. Renewable power and annual energy values of White and Barents seas.

	Sea Wave energy flux Basin area,m²	Total renewable power	
		(kW/m per minute)	(W / year)
White	10	0.09.1012	3.03.109
Barents	25	1.42.1012	0.83.1011

Solar energy

This resource is the most significant of the available renewable energy sources (Minin et. al. 1992). But the particular conditions in life in the sub-arctic do pose a number of difficulties with regard to developing solar energy. But as the means for exploiting solar energy continually develop then this resource warrants attention.

Scandinavia has demonstrated that solar power can be an effective solution providing a heat supply. Seasonal changes in sunshine durations at Sweden's Ingelstad and at Umba settlement on the northern coast of the White Sea also demonstrate this. Using Swedish heat accumulator designs, accumulators could be located at underground thermal reservoirs and at ground base reservoirs which are thoroughly insulated from their surroundings.

The practicality of solar heating systems depends not only on the geographic latitude of location and the duration of solar energy exposure but also on the solar energy collection cost compared against other conventional energy and fuel costs. Although as solar technologies become less expensive to produce so these technologies will become more viable.

In summary, it can be stated that well established renewable energy strategies such as availability, stability, reliability, and profitability are inherently sustainable and , they are pollution-free and are politically acceptable (when compared against fossil or nuclear energy) and if adopted, will help to conserve fossil fuel for generations to come and will satisfy growing energy demands. Furthermore, renewable energy can be seen to be economically viable and profitable and will create new workplaces and employment for the region.

Energy security as a part of ecological security

Expression of ecological security (EcS) and energy security (EnS) is commonly used today by many different specialists (for example scientists, power engineering specialists, businessmen, economists, officials). With these specializations however, EcS and EnS often convey different meanings. This part of the paper considers how the concept of EcS and EnS is changing (both regionally and internationally) in accordance with dynamic shifts in wider worldwide energy policy. This paper emphasizes the close interrelationship between EnS and EcS.

The Murmansk region is looked at more closely to highlight the threats that exist within existing regional and federal policies as things stand today. The outcome of these examinations make it possible to set out the main premise for introducing a coherent system of measures (prognosis, planning, preprogramming and preventive arrangements) that will help address the threats to delivering successful EnS and EcS and so deliver a healthier balance between the health and

quality of people's life and the need to develop the industrial, communications, and agricultural complex of the region.

The Doctrine of Energy Security in the Russian Federation seeks to assure continued successful and uninterrupted supply of energy/fuel to the country (region). It is apparent that "energy security" is a term that conveys different meanings to different countries (regions) depending on whether they are energy producers or energy consumers (importers).

Different interests offer different determinations of Ecological security (EcS), although it can be agreed that for all, there is a common desire to assure the better quality of life and activity for the people inhabiting these territories. It is suggested that a contemporary system of EcS will provide the means to reduce threats to the:

- protection of soil and landscapes from industrial waste;
- protection of the urban-industrial atmosphere/environment;
- protection of water supplies;
- protection from electromagnetic pollution;
- protection from noise pollution;
- development of ecological risk management policy;
- education of the population to maintain ecological standards.

It can be concluded that the systems of EnS and EcS share a common desire to preserve and better protect the natural living conditions for the territory. EnS focuses upon the more technical aspects of energy production and consumption while EcS carries a wider, broader agenda. In so far as the energy sector is an element of the economy, we can assert that EnS is a subset of EcS.

Scientists within the Kola science Centre (KSC) assessed the Murmansk region's EnS capability by assessing five broad categories (parenthesis indicate the assessment for each category). The scale of EnS assessment used is based upon a numerical range of design score indices carrying the following severity weightings:

Normal	1
Becoming Unstable	2
Unstable	3
Under Threat	4
Dangerous	5
Hazardous	6
Critical	7
In Extreme Crisis	8

Qualitative assessment was carried out against the following energy categories:

Energy Category	Assessment	Outcome Score
Electricity Supply	Normal	1
Heating	Becoming Unstable	2
Provision with Fuel	In Extreme Crisis	8
Structural Operational Block	Becoming Unstable	2
Reproduction of Key Energy Assets	Hazardous	6

Taking an "average" overall assessment across all energy categories would indicate that the region is "dangerous".

The predominant EnS threat in the Murmansk region exists because there is an absence of any natural fuel base (and so no inherent territorial boiler-furnace fuel or petrol fuel capability); There is an over dependency upon (mazut) fuel; there is an excessive centralization of energy supply systems; central energy facilities are old and worn out; there is a lack of investment into reproduction of energy objects.

A forward looking approach towards achieving energy security will require a programme of activity across three major fronts:

- modernization of existing energy infrastructures
- introduction and regulation of new consumer technology
- adoption of energy saving and efficiency codes of practice

The modernization of energy infrastructure requires a timely and proper upgrading of existing energy technical components and facilities to assure a sustainable provision of reliable energy supplies (including emergency reserve supplies) delivering high-quality electricity and heat supply networks; reducing dependency on fossil fuel through adoption and investment in renewable and non-conventional sources of energy. The introduction and regulation of new consumer technology will ensure that energy consumers have appropriate energy-saving devices in place and increased understanding of energy conservation strategies to manage energy consumption. Finally, the adoption of energy efficiency codes of practice involves the authoritative regulatory control/audit of energy usage, implementing energy management strategies to deliver industrial scale efficiencies and wider cost benefit.

In summary, in regard to energy security, it can be concluded that there are no contemporary measures in place within the Murmansk region to provide sustainable energy security in terms of the modern economic need to address necessary technical and policy complexities in energy delivery.

In summary in regard to ecological security, it can be concluded that city and urban development in the Murmansk region occurred at a time when ecological

risks were not taken into account and as a result industrial facilities were often constructed near to dwellings and in areas most vulnerable to ecological threat. The absence of control and regulation protecting the environment from human impact has led and still leads today to ever higher levels of pollution (solid waste, chemical and radioactive contaminations, uncontrolled electromagnetic fields, and noises).

Modern policy on ecological security must take into account and seek to protect those areas that pose risk to human and socio-ecological impact. The list of environments with high anthropogenic pollution in the Murmansk region is in common with other similar regions in the world:

- ATMOSPHERE - motor transport, combined heat power plants, boiler-houses, emissions from industry;
- WATER – raw sewage and industrial chemical pollution
- LAND –dumps and land-fill sites, unstructured and undisciplined and uncontrolled and unorganized disposal of industrial waste sites
- RADIATION – heightened natural geological levels of radiation beneath the Baltic Shield; nuclear contaminations from underground and surface nuclear tests, nuclear contaminations from Kola NPP and atomic navy;
- ACOUSTIC noise pollution from increasing growth in transport usage;
- ELECTROMAGNETIC pollution from high-voltage lines, systems of cell and mobile communication devices, satellite connection stations, traffic speed radars, television and radio stations, microwave and infrared radiation, computers etc.
- POPULATION – lack of public education and participation in the management of the environment (for instance general absence of city green zones and poor adoption of horticultural practices).

Unfortunately the size, extent and impact of these complex interrelationships are extremely hard to quantify. Meaningful progress in estimating the extent and real size of the problem is slow and unstructured. There is no determined will on behalf of the government to manage these issues. Perhaps this is as a consequence of earlier ingrained bias towards sponsoring and supporting the greater immediate needs of state industry. As far as there is no creditable modern estimation of EcS and EnS in the Murmansk region, so regional policy for EcS and EnS is not aligned towards taking properly proper approach to "today's" new challenges. On a positive note, small-scale business are deriving benefit by adopting modern (eg bio-gas) practices to better manage increases in prices for energy carriers and this does provide positive ecological benefit. Larger scale businesses see a need to project a positive ecological image and this also leads to progress in favor of environment protection.

Conclusions

Protecting the environment became a major concern to the people in northern Russia and this concern brought about the first example of multilateral cooperation between the Arctic states during the 1990s. The focus of studies and reports produced during this period all stress the importance of nuclear safety, particularly around the Barents Sea region (Bergman etal. 1996). Renewable energy sources could certainly be a positive force for not only withstanding climate change but also in lessening concerns around nuclear energy for the people in the northern Russia and its neighbouring western countries.

Energy issues are taking a central position in current relations between North America, Europe, and Russia. At the turn of 2005-2006 interruptions to the supply of energy from Russia, "made energy security a central topic" with her European neighbours (Heininen, 2007). This resulted in a more rapid development of nonconventional renewable energy sources which also, has been beneficial for climate change as well. It is a part of functional cooperation across national borders in the Barents Euro-Arctic Region.

The cooperation between ecologists, scientists, governmental and state economic authorities, and business, begun by non-governmental organizations in 2006, saw the creation of a working group to develop the region's long-term strategic program - "Development of non-conventional and renewable sources of energy in Murmansk region for 2009-2015".

Financing of the program comes mainly sourced from businesses. However the regional budget will provide 400,000 RUR by way of subsidies to the municipalities and enterprises falling within the scope of the program. It is projected that the amount of renewable energy produced in 2015 will be 7.7%. All this strongly contributes towards supporting the new prospects for renewable energy development within North-West Russia as one of measures to counterbalance climate change.

Investments and actions based on the – still imperfect – scientific understanding of human physiology, diseases, their prevention and cures are probably the cause of the greatest increase in human welfare over the past two centuries. It might well be that investments and actions based on the scientific understanding of what I call the physiology of the planet are the key to human welfare in the 21st century (Simon Lewis, 2009). In climate change terms we must move from residual skepticism to the implementation of solutions to energy needs without using fossil fuels as quickly as possible. A new strategic deployment of arguments, alongside precise protests to move society into a new direction, will be the means of getting there.

In summary, concerning energy security and ecological security, it can be concluded that there are no modern policy and contemporary measures in place

within the Murmansk region to provide sustainable energy and ecological securities in terms of both the modern economic need to address necessary technical and policy complexities in energy delivery and protection of those areas that at risk to human and socio-ecological impact.

References

Barannik, B., Kalinina and N. Vinogradchiy, A. 2007. Prospective development for the power industry of Murmansk region, in *Technical-Economical and Electrophysical Problems of Energy Development in Northern Areas*. Apatity: Kola Science Centre: 6-23

Barannik, B., Kalinina, N., and S., Tuinova. 2004. *The Assessment for Energy Secure in Murmansk Region*, Apatity: Kola Science Centre.

Bergman R., Baklanov A. and B. Segerstahl. 1996. Overview of Nuclear Risks on the Kola Peninsula. Summary Report. IIASA Radiation Safety of the Biosphere., Luxemburg:International Institute for Applied System Analysis (May 1996).

Bernstein Lev. 1998. *Tidal Power Plants*, Moscow: Energizdat.

Bezrukikh P., Borisov V., et al. 2002. Energy Resources and the Efficiency of Using Renewable Energy Sources in Russia. St. Petersburg.

Dmitriev, G. and V. Minin. 2005. Prospects of wind energy for Kola Peninsula, in Formation of base for contemporary strategy of energy using in Euro Arctic Region. Apatity: Kola Science Centre RAS: 333-336.

Heininen, Lassi, 2007. Changes in Problem Definition on Northern Security, *Nordic Environmental Social Sciences Conference.* June 18-20, 2007. Oslo, Norway. Norwegian Institute for Urban and Regional Research Research (NIBR).

Kotomin A. and E. Kamenev. 2008, Ecological and economic background of heat pump using under exploitation of apatite-nepheline deposits in Khibiny massif. *Ecology of Industrial* Production 2: 77-80

Krivorutskij, L. and B. Barannik. 1999, Energy Base of the West of European North of Russia, Apatity: , Kola Science Centre of RAS.

Lewis, Simon. 2009, "Scientists on the Streets: To get the Climate Change Message Across, environmental scientists need better arguments – and more public protests". Available online at http://www. guardian.co.uk/ commentisfree/2009/mar/10/ climate-change-environment-scientists

Matushevsky G. 1982. An Evaluation of Resources of Wave-Induced Undulation in the Seas of the USSR. Moscow.

Minin V., T. Yakunina and I. KorobkoI. 1992. Prospects of Application of Solar Energy in the Murmansk Region, in *Energy Supply Problems in the Murmansk Region*. Apatity: Kola Science Center of RAS. 1992. 73-81.

Minin, V. and G. Dmitriev. 2007. Prospect for development of non-conventional and renewable sources of energy on the Kola Peninsula, Bellona Report: Oslo.

Murmanskstat. 2008. The Murmansk region in 2007. A Statistical Annual Report. Murmansk.

Official Internet-Portal for the Government of the Murmansk region, News on International Conference "Adaptation to Climate change and its Role in Ensuring sustainable development of regions," Murmansk, 2008, May 13-14, Available online at http://www.govmurman.ru/

Russia. Ministry of Energy. 2001. Russia's Energy Strategy from 2000 till 2020. Moscow: Russian Ministry of Energy.

Tormod, Briseid. 2008, Biogas Production from Organic Waste: Applications for Small Communities, Earth and Environment, Bioforsk, in *Development of Renewable Sources of Energy in Northwest Russia: Possibilities and Perspectives*, 1–2 April 2008 . Murmansk.

Tuinova, S. 2008. The Call for Non-Conventional Renewable Energy Sources in Murmansk Region, in North and Market: the Building of Economic Form No.1/2008 (20): 118-125.

Volashanik V., Zubarev V. and M. Frankfurt. 1983. Application of Wind, Ocean Wave and Stream Flow Energy Sources. –VINITI (The Russian Institute for Scientific and Technological Information), Results of Science and Technology, in *Nonconventional and Renewable Energy Sources*, Moscow.

Chapter 3

Accepting Uncertainty: The Role of Nonhuman Agency in Shaping Responses to Climate Change

Lisa M. Cockburn

Abstract

Climate change is undoubtedly one of the most important challenges facing the Arctic, and a core element of climate change is increasing uncertainty. Western society looks predominantly to science for answers, yet in its attempt to predict the future of environmental change, science can become entangled in a never-ending battle; what may be needed is increased acceptance of particular forms of uncertainty. An alternative relationship with uncertainty can be found in many indigenous worldviews, where spiritual elements allow greater acceptance of the unknown or unknowable, making the intersection of scientific and indigenous knowledges in the Arctic particularly poignant. Nonhuman agency refers to an inherent element of unpredictability in the world that is not simply the result of incomplete human understanding or limitations on our capacity to gather, process or interpret data. I discuss how recognizing a form of agency in the nonhuman world could better position science to accept the necessary uncertainties of climate change, and I explore the emerging feminist ontology-epistemology of agential realism as a promising path towards this. Through its identification of intra-acting agency as the primary unit of existence, agential realism can help Western science and society better cope with and adapt to climate change by allowing science to accept the inherent indeterminacy of the world, similar to the role spirituality plays in allowing indigenous cultures to accept this uncertainty. With increased humility, scientific knowledge can become a more useful tool in understanding and addressing phenomena such as climate change.

Introduction

Climate change exists somewhere between the material and discursive worlds. It is widely accepted that climate change is already occurring as a result of the anthropogenic elevation of greenhouse gas levels in the atmosphere (IPCC 2007b), making materially evident the warnings of environmentalists and the effects of current global power relations. With global causes and local impacts, climate change

is also a serious factor affecting human and environmental security (O'Brian 2006; Heininen, this volume). But 'climate change' is itself a concept created discursively by scientists, researchers, policymakers – *humans* – by weaving together multiple events, observations, predictions and beliefs; it cannot be directly seen, but is the result of making the material world discursive. Without the discursive elements of science, all the same things would be happening, but by tying multiple human-nature interactions together, attributing causality, and making predictions about the future, this phenomenon called *climate change* emerges: "The real threat of global warming exists in a future that has not yet come to pass. The links between the exhaust of my car and the extension of the Sahara desert exist only in computer simulations. What should we make of that?" (Pickering 2005, 39).

Because the concept of climate change emerges through science, and because science is the dominant epistemology of Western society, it is to science that society looks for answers of what is going to happen and what our options for mitigation and/or adaptation might be. The material challenges of climate change are likely to be great, regardless of what worldview we hold; how we respond will depend largely on the discursive element of how we imagine the nonhuman world and our relationship with it. In other words, our human security depends as much on how we approach circumstances as the actual circumstances themselves.

The Arctic region is at the frontlines of experiencing the effects of climate warming (ACIA 2005), and indigenous peoples in the Arctic are already encountering and responding to climate change in their daily lives (Krupnik and Jolly 2002). Efforts such as those discussed by Crate and Tuisku in this volume show the importance of traditional indigenous knowledge in understanding environmental change and its effects on culture in the North. Climate change is thus a revealing arena where the strengths and weaknesses of the scientific worldview are brought to light through its interactions with other ways of understanding such as indigenous knowledge. Its unprecedented scale and scope also bring the potential of calling into question the underlying ontological and epistemological assumptions of science: namely, that the nonhuman world exists in a definite and determinate way, beyond our knowledge and interaction with it; and that the greatest challenge is gaining access to true knowledge and understanding of that world.

Agential realism[1] is a growing philosophy that merges ontology (what is) and epistemology (what can be known and how). As such, it allows a return to the materiality of the world without discounting the imagined and constructed

[1] I join Karen Barad (2003, 2007) in labeling this philosophy "agential realism". In my reading of agential realist philosophy, I also draw from Iris van der Tuin's (2006) "new materialism", Donna Haraway's (1991, 2000) "situated knowledge" and "cyborgs", Andrew Pickering's (1995) "temporal emergence" and "dance of agency", and Nancy Tuana's (2006) "interactionist ontology".

discursiveness of it in the process. It offers new possibilities for encountering climate change by looking at the spaces between the social and the natural. While the physical sciences traditionally focus on the material world "from which all traces of humanity have been expunged" and the social sciences look at "a social world from which the material world has been magically whisked away by linguistic conjuring tricks" (Pickering 2005, 31), what is increasingly important and revealing is to look at the zone of intersection between people and things (Pickering 2005, 30). In agential realism, all that exists comes into being through interaction, or more precisely, int*ra*-action: "Knowing is a matter of part of the world making itself intelligible to another part. Practices of knowing and being are not isolatable, but rather they are mutually implicated" (Barad 2003, 829). Agential realism's focus on relationships and interactions rather than things aligns it closely with indigenous knowledge, which is predominantly "knowledge that resides in doing" (Bielawski 2005, 951). Agential realism is able to bridge and dissolve dichotomies through its focus on intra-actions and its posthumanist relinquishment of agency as the sole property of humans; it is thus an ideal tool for examining and facilitating the meetings of science with climate change and indigenous knowledge.

Using agential realism as a framework, I will discuss some lessons that emerge for science from these meetings, particularly revolving around themes of uncertainty, spirituality, and nonhuman agency. I end with a discussion of indeterminacy, and suggest it may be a more productive point of engagement with the nonhuman elements of climate change than uncertainty.

The Battle with Uncertainty

Uncertainty is a central element of climate change. In fact, climate change can be thought of as a phenomenon of *increasing* uncertainty, greater variability and unpredictable change. Scientific and indigenous worldviews deal with uncertainty very differently[2], and acts as a major barrier in attempts to bring together these knowledge systems. Differences in how indigenous knowledge and science come to know the world are closely linked to how they differently perceive and think about time[3]. Indigenous knowledge is relational in its dealings with time, thinking in

[2] This paper is based on my MSSc thesis research, in which I conducted a discourse analysis of written texts published by, and qualitative interviews conducted with, researchers working at the intersection of indigenous and scientific knowledge of climate change. For further details on methodology and results, please see Cockburn 2008.

[3] In this and subsequent sections, I speak of the philosophical underpinnings of indigenous knowledge as I have come to understand them in my research. It is not my intention to characterize and classify the true nature of indigenous knowledges and worldviews or speak for any of the indigenous groups whose knowledge this is. Instead, my purpose is to critically examine how indigenous knowledge *appears* when looked at through the lens of science, to

terms of cycles that alternate rather than averages and extremes. Thus the idea of "normal," so common in the Western worldview, is rarely used. For example, forecasting weather is "a lifelong and a twenty-four-hour passion" (Krupnik 2002, 172). Knowledge is lived and inseparable from living, gained not by imposing constructions of measured linear time onto the world, but through watching the world unfold. In many indigenous societies, talking about the future is not necessarily seen as productive, worthwhile or even appropriate. For example, Krupnik (2002, 176) quotes a Yupik hunter's views on prediction: "You can never make a good forecast for tomorrow if based upon today's weather. Better go out and check it in the evening. Make a guess and check it next day: it is better to see whether it is correct or not" (Chester Noongwook, 2001). Changes in weather and environment are followed day to day, and compared with what has happened in the past (Tuisku, this volume). Indigenous knowledge is not so concerned with what *usually* happens as what *actually* happens moment to moment, and change is expected.

Prediction is something science[4] is purportedly good at, and for prediction to be meaningful, uncertainty must be quantified. The lack of attention paid to quantifying uncertainty in indigenous knowledge thus becomes a major barrier. But, by generalizing the variability of reality with averages, trends, probabilities, and confidence intervals, science obtains *seemingly* greater certainty, while the variability remains unchanged: "convergence among models is not the same as reducing uncertainties" (Manning *et al*. 2004, 33). In its drive to reduce uncertainty, science can end up masking the uncertainty that still exists. The increasingly uncertain world of global climate change means changes in what can be expected, non-uniform change on a scale that is quite literally as big as the entire earth and atmospheric system. Reductionism that aims to understand each individual part and then synthesize all this knowledge, seems an unrealistically lofty goal: *the goal of reductionist science in the context of climate change essentially becomes complete understanding of the entire world and everything in it*. This impossible paradox of seeking to understand everything leads to the never-ending calls within the science discourse for more data. But eventually, all scientific data must be synthesized, summarized, analyzed and understood by people, or remain useless: what is needed may not be more data, but more wisdom. The shift from single discipline data production to interdisciplinary research aimed at integrated understanding, discussed in the introduction and evidenced by this volume, is an important step in the right direction. Still, when it comes to climate change an ontological-

see what this reveals about *science*: my discussions of indigenous knowledge are meant to be read as a lens for shining light back on science itself.

[4] When discussing the philosophy of science, I am again referring to how it emerged in the science discourse in the texts and interviews I analyzed (Cockburn 2008), and do not mean to generalize all sciences, some of which see things very differently than discussed here.

epistemological framework that sets itself in constant battle with uncertainty, as science does, seems doomed to fail. Perhaps indigenous knowledge is not so good at prediction *because it fundamentally does not believe that predicting the future is possible.* Rather than quantify uncertainty, indigenous knowledge accepts it as an inherent part of the world.

Spirituality and Non-Human Agency

Spirituality emerges as a major barrier reinforcing the dichotomy between science and indigenous knowledge, a potentailly irresolvable contradiction between the two (Cockburn 2008). Although long known to exist and often mentioned, very little headway has been made in addressing this "problem of the sacred" (Trudel 2006, 5). Since the time of Galileo, science has explicitly defined itself by the exclusion of spiritual elements (Bielawski 2005, 953), while a spiritual component involving "non-dominant, respectful human-nature relationships" is found in almost all indigenous knowledge systems (Berkes 1999, 163). The Yupiaq worldview described by Kawagley (2006, 14-16) illustrates just how greatly indigenous worldviews differ from science: the natural, spiritual and human realms each provide an essential support and must remain aligned and in constant communication to maintain balance and wellness in all parts. Similarly, Dene and Inuit conceptions of "environment" includes "people, land, animals, air, insects, water, fish, birds, plants, rocks, *and everything else we can perceive or imagine*" (Bielawski 2003, 313, emphasis mine), including all possible past and present relationships, and encompassing both social interaction and spiritual knowledge. This contrasts starkly with the Western worldview that maintains a strict dichotomy between human and nature, with the environment explicitly excluding us.

A telling example of the barrier spirituality poses is seen in the following story of an Igloolik hunter trying to explain to government biologists that polar bears, having intelligence equal to or greater than humans, make the choice of when to allow themselves to be taken by hunters. The hunter told of a time he was following fresh bear tracks only to find them suddenly end, "and there on the tundra was a rectangular block of ice. Clearly, the polar bear, not wanting to be taken, had transformed itself into ice. The government biologists were bemused at this explanation, whereupon the old hunter told them that if they did not, or could not believe him, then they knew nothing about polar bears" (*The Arctic Sky*, MacDonald 2000, 18, quoted in Bielawski 2003)

Apart from the actual spiritual meanings attached to explanations, what is it that this spiritual element brings to indigenous knowledge that is not present in science? Indigenous knowledge sees the natural world as possessing agency, while science fundamentally does not. If the natural world has agency – constantly

changing, animate and full of surprises – then it is no longer expected to follow definite or predictable rules. Uncertainty becomes the norm, and easier to accept. Much of science is based on the assumption that when a natural system following static laws is observed by an objective observer, the results will also be static (i.e. predictable and replicable):

correct theory x static world x objective observer = predictable result

When this equation breaks down, science assumes it to be a problem with the observer or with the theory, because only humans are granted agency and thus the ability to throw a wrench into the works. It is the human capacity for understanding that is seen to limit science, not the nature of the world itself. Disciplines in Western knowledge split along this human-centric idea of agency: when humans are the subject, as in the social sciences, outcomes are seen as inherently less certain or deterministic than in the natural sciences. The way in which the Intergovernmental Panel on Climate Change (IPCC) handles uncertainty differently in its three working groups illustrates this point well: the methods of Working Groups I and II (*The Physical Science Basis* and *Impacts, Adaptation and Vulnerability*) are "judged to be inadequate" by Working Group III (*Mitigation of Climate Change*) in dealing with the "specific uncertainties involved in this mitigation report, as here human choices are considered" (IPCC 2007a, 23). Humans are seen to add greater uncertainty through their agency.

Amidst all this, it is helpful to remember that the dominance of science and its assumptions has not always been so. In the worldview of medieval Europe, the nonhuman world was dynamic and alive, and the relationship between humans and nature empathetic, "nature that must be read like a book, not dismantled like a machine" (Everndon 1992, 43). With the Enlightenment and the scientific revolution came the replacement of this knowable-through-lived-experience concept of nature by the belief that nature was only knowable through objective scientific study, a "non-experienced reality" (Everndon 1992, 53). Then followed a dramatic shift "from the fundamental assumption that the world is alive and that death is the anomaly to the assumption that death is the norm and life is the anomaly" (Everndon 1992, 90). Everndon argues this shift could not have been conceived, never mind accepted, until we effectively cut ourselves off from nature through the reinforcement of the human|nature dichotomy. If this dichotomy can again be dissolved, perhaps nonhuman agency can also be restored.

Re-Imagining Agency

Without actually invoking spiritual explanations, agential realism accepts uncertainty through its acceptance of nonhuman agency. The common understanding of agency, involving action or intervention aimed toward a specific

result, is an attribute humans have long claimed for themselves as a defining feature of humanity. By recognizing voice and agency in the nonhuman world that is not merely a reflection of our own, agential realism reconceptualizes agency itself. As Gram-Hanssen (1996, 93) puts it, nature "does not speak for itself, nor does it totally disappear through human theorizing". It is an 'other' with its own form of subjectivity and agency, and we can neither know it from its own perspective nor remove our own perspective from our knowing of it. This is helpful in understanding nonhuman agency: if we realize that our concept of agency is coloured by how we as humans experience it, we can start to see that this is but one viewpoint, and far from the only one. The concept of agency I am using has two requirements: first, for 'A' to have agency, something 'B' must be affected, and second, the resulting effect must be due to action or influence of 'A' which is more than the residual of 'B' not having the power to resist: something equivalent to intention is required of 'A'. Simply seeing nature as powerful and difficult to predict is not enough: if unexpected outcomes are attributed to *human* limitations or failure to understand the structure well enough, then nature only *appears* to have agency.

Barad (2003, 818) describes agency as "not an attribute but the ongoing reconfigurings of the world" and matter itself as "a congealing of agency" (Barad 2003:818). The key to understanding nonhuman agency is that agency is primary. In Pickering's (1995, 6) words, it is "the idea that the world is filled not, in the first instance, with facts and observations, but with agency". Relations are primary to relata (Barad 2007 136), and thus the lines between subject|object and cause|effect emerge through, not before, interaction: hence the term *intra-action*. Pickering describes how the posthuman space (which includes both human|nonhuman elements and agency) is temporally prior to anything that either the natural or social sciences may choose as an object of study; in this way, posthuman objects of study emerge in an "unpredictably open-ended fashion" (Pickering 2005, 34). All things, subjects and objects, emerge and are created through this constant iterative relationship. Agency is not something to be possessed: we do not have agency, we *are* agency – becoming through our intra-actions – and so is everything else.

Science itself can be thought of as the act of capturing material agency in a form that we humans are able to understand (Pickering 1995, 7). The increasing variation and unpredictability of climate change is the agency of the world becoming more visible to us: "No one knows where this kind of dance of agency is going. This is the sense in which such assemblages are prior to the objects of the traditional sciences. The latter come late, and try to understand what the dance of agency has made visible" (Pickering 2005, 35). Science can help make sense of things by creating objects of study *ex post facto*, after their creation through intra-action, and may at times succeed in applying the rules it derives to prediction of future outcomes. But as Haraway (1991, 199) reminds us, nature is a "witty agent," a trickster that will continue to prove us blind if we assume it to be too predictable or knowable.

Science is very good at predicting until it is not, but it is those instances where it fails that are most telling: here the nonhuman agency of the world becomes evident and the wisdom of the humility central to indigenous knowledge is highlighted.

Indeterminacy

The IPCC identifies two broad classes of uncertainty: "statistical" uncertainty occurs when specific values or parameters are not precisely known, while "structural" uncertainty occurs when functional relationships are not understood or it is not known if all relevant variables have been included (Manning *et al.* 2004, 2). But a third type of uncertainty, often referred to as "chaos" or "lack of predictability" (Manning *et al.* 2004), also exists, which can be alternatively viewed as a manifestation of the agency of the object of study. It originates beyond the epistemic level of the amount of empirical evidence known, the adequacy of conceptual frameworks, or our ability to understand. Agential realism offers not only a framework within which science and society can better accept uncertainty, but also an alternative understanding of this type of uncertainty as *indeterminacy*.

In developing her concept of agential realism, Barad (2007) uses examples from quantum physics and elaborates on the philosophy first suggested in the writings of Neils Bohr. The classic illustration of uncertainty *vs.* indeterminacy is a thought experiment of trying to measure both the position of an electron (requiring use of a fixed platform) and the measurement error incurred, determined by measuring the momentum of the electron (requiring a moving platform) (Barad 2007, 112). The key point is that the two experimental setups are mutually exclusive: the platform cannot be both fixed and moving at the same time, so greater accuracy in measuring position means less accurate measurement of momentum, and *vice versa*. One way of interpreting this problem is as one of uncertainty: an epistemic limitation to what can be known (this is the interpretation present in the well known Heisenberg Uncertainty Principle). Barad contrasts this with Bohr's "complementarity," from which she derives an "indeterminacy principle": "the values of complementary variables (such as position and momentum) are not simultaneously determinate" (Barad 2007, 118). Indeterminacy refers not to an epistemic limitation as uncertainty does, but to an *ontological* one, an inherent feature of the world. Not just the unknown, this is the unknowable, or even "what can be said to simultaneously exist" (Barad 2007, 118).

Barad (2007, 148) discusses the importance of apparatuses as the "conditions of possibility and impossibility of mattering," enacting a local and contingent agential separation of object and subject. What *is* is not determined until specific agential cuts are made through the application of specific apparatuses. While an apparatus is most obviously understood as the physical equipment necessary to measure a certain

phenomena (i.e. the fixed or moving platform in the example above), it can also include the role of the scientist or observer, and even extend to the theories and beliefs that underlie the choice to (intra)act in a specific way. She further redefines the concept of objectivity as being tied to careful and detailed description of the apparatus used, because what is at issue is agential separability, the clear articulation of what is used to make the causal cut between object and subject: "resolution of the semantic-ontic indeterminacy provides the condition for the possibility of objectivity" (Barad 2007, 120).

How we think about the world has real material consequences, and how we react and adapt to climate change most certainly will depend on our underlying philosophical framework. How might an acceptance of uncertainty/indeterminacy help us to cope with climate change? Although simpler to grasp when applied to a single electron, the implications of indeterminacy are far-reaching. In climate change science, the battle with uncertainty verges on crippling: if we refuse to act until we are more certain, then we will never act if what we are dealing with is actually indeterminacy, because it can never be fully resolved. Yet our actions matter in a very real sense, as we are part of this global experimental apparatus: our intra-actions create what we are measuring, while excluding the possibility of other phenomena from existence.

Conclusions and Possibilities

The accumulation of indigenous knowledge can be visualized as a slow moving rain cloud that follows the topography of the land, each falling drop becoming integrated and embedded in space and time. In contrast, scientific knowledge generation is like a powerful hose positioned at one present moment: it sprays its water as far as it can reach and calls the circumference of its reach reality. Driven by its desire to increase certainty, science continues to divide the world into smaller bits, and as more and more data is packed in, the pressure builds up, threatening to explode. The posthumanist ontologyepistemology of agential realism provides an alternate framework to look at the whole landscape – the land, water, hose and clouds – seeing the intra-actions between all of the components as primary and *mattering*, both literally and figuratively. Aligning more closely with indigenous knowledge systems than with science, agential realism explicitly recognizes the embodied and accountable nature of the observer in all knowledge claims and traverses academic disciplinary boundaries, offering a more holistic view of the world. And, by recognizing agency in the material world, it offers science a way of accepting uncertainty similar to what spirituality does for indigenous knowledge.

Climate change can challenge us to deconstruct how we think about borders (Koivumaa, this volume), how we cooperate with each other (Niemisalo, this

volume) and how we define security (Heininen, this volume): why not also how we encounter uncertainty? The earth is changing ever more quickly, not only beneath the feet of indigenous communities, but under us all (Crate, this volume). The future is constantly co-created and emerging through our intra-actions with it, and even when the changes we are witnessing are human-induced, the nonhuman world always plays a parallel role in this dance of agency. No matter how hard we try, we will never move beyond the present moment; however much we may fight it, we are still moving with the world at the world's pace just as indigenous knowledge is. By changing our attitude and cultivating acceptance of uncertainty/indeterminacy, we avoid engaging in a constant battle with what is, trying to simultaneously understand everything and make (or keep) it the way we think it should be. Science has a history of imposing its theories onto the world with little regard for where the fit is clumsy at best, disastrous at worst. But instead of constantly trying to erase our mistakes and stick to the plan, we could embrace the flow of the world as it emerges. Knowing we have made mistakes, even consciously trying to live and develop in ways that we believe to be better, we could still accept what already is. In the words of Pickering (2005, 41), "we could look for the beauty, very broadly understood, natural and social, in the outcomes of our interactions with the environment, and we could try to work on and amplify that when we find it." By accepting the partiality and limitations of our knowledge, posthumanism offers humility about our place in the agency-filled world. The future is not only uncertain (and as many oral traditions would remind us, always has been), but is also indeterminate. Things are not just unknown, mysterious, or beyond our control, they are *not yet determined*, and with that comes much hope and possibility.

References

ACIA. 2005. *Arctic Climate Impact Assessment*. Cambridge: Cambridge University Press.

Barad, Karen. 2003. Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter. *Signs* 38 (3): 801-831.

Barad, Karen. 2007. Meeting the Universe Halfway: Quantum physics and the entanglement of matter and meaning. Durham & London: Duke University Press.

Berkes, Fikret. 1999. *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*. Philadelphia: Taylor and Francis.

Bielawski, Ellen. 2003. Nature Doesn't Come as Clean As We Think It: Dene, Inuit, Scientists, Nature and Environment in the Canadian North. *Sciences*

Across Cultures: The History of Non-Western Science, Vol. 3, Dordrecht, Netherlands: Kluwer Academic Publishers.

Bielawski, E. 2005. Indigenous Knowledge. In Mark Nuttall (ed) *Encyclopedia of the Arctic, Volume 2*. New York: Routledge, pp. 950-955.

Cockburn, Lisa M. 2008. *Boundaries and Agency in Climate Uncertainty: Encountering Traditional Knowledge at the Edges of Science.* Pro-gradu Thesis, University of Lapland, Rovaniemi, Finland. Available online at http://olos.ulapland.fi/onayte/julkinen/upl.php?c=ONAYTE&f=6351.pdf.

Everndon, Neil. 1992. *The Social Creation of Nature*. Baltimore: The Johns Hopkins University Press.

Gram-Hanssen, Kirsten. 1996. Objectivity in the Description of Nature: Between Social Construction and Essentialism. In Nina Lykke and Rosi Braidotti (eds) *Between Monsters, Goddesses and Cyborgs: Feminist Confrontations with Science, Medicine and Cyberspace.* London: Zed Books: 88-102.

Haraway, Donna. 1991. Simians, Cyborgs and Women: The Reinvention of Nature. New York: Routledge.

Haraway, Donna. 2000 (1991). A Cyborg Manifesto: Science, Technology and SocialistFeminism in the Late Twentieth Century. In D. Bell and B. Kennedy (eds) *The Cybercultures*. New York: Routledge:.291-324.

Hird, Myra J. 2004. *Sex, Gender and Science.* New York: Palgrave MacMillan.

IPCC. 2007a. Summary for Policymakers. In B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds) *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge, United Kingdom: Cambridge University Press.

IPCC. 2007b. *Summary for Policymakers of the Synthesis Report of the IPCC Fourth Assessment Report.* Valencia, Spain: Intergovernmental Panel on Climate Change Secretariat. Available online at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

Kawagley, Oscar Angayuquq. 2006. *A Yupiaq Worldview: A Pathway to Ecology and Spirit* (2nd Edition). Long Grove, IL: Waveland Press.

Krupnik, Igor. 2002. Watching Ice and Weather Our Way. In Igor Krupnik and Dyanna Jolly (eds) *The Earth is Faster Now: Indigenous Observations of Arctic Environmental Change*. Fairbanks, Alaska: Arcus: 156-197.

Krupnik, Igor and Dyanna Jolly. 2002. *The Earth is Faster Now: Indigenous Observations of Arctic Environmental Change*. Fairbanks, Alaska: Arcus.

Manning, Martin, Michel Petit, David Easterling, James Murphy, Anand Patwardhan, Hans-Holger Rogner, Rob Swart, Gary Yohe (eds). 2004. *IPCC Workshop on Describing* Scientific Uncertainties in Climate Change to Support Analysis of Risk and of Options: *Workshop report.* Geneva: Intergovernmental Panel on Climate Change (IPCC).

O'Brien, Karen. 2006. Are we missing the point? Global environmental change as an issue of human security. *Global Environmental Change* 16: 1-3.

Pickering, Andrew. 1995. *The Mangle of Practice: Time, Agency and Science*. Chicago: The University of Chicago Press.

Pickering, Andrew. 2005. Asian eels and global warming: a posthumanist perspective on society and the environment. *Ethics & the Environment* 10 (2):29-43.

Trudel, Francois. 2006. *Indigenous Knowledge Systems*. A Position Paper for the 4th NRF Open Meeting, Oulu, Finland and Luleå, Sweden, October 5-8, 2006. Available online at http://www.nrf.is/Open%20Meetings/Oulu%20Lulea%202006/Position%20Papers/Trude l_4th%20NRF%20PP.pdf

Tuana, Nancy. 2006. Witnessing Katrina: Re/Cognizing Nature for Socially Responsible *Science*. The New Directions Katrina Research Workshop, "Cities and Rivers II, New Orleans, the Mississippi Delta, and Katrina: Lessons from the Past, Lessons for the Future," New Orleans, Louisiana, USA, March 21-25, 2006. Available online at http://www.ndsciencehumanitiespolicy.org/katrina/meetings/march%20readings/Tuana.pdf

van der Tuin, Iris. 2006. Third Wave Materialism: Feminist Epistemology after Feminist *Postmodernism*. Paper presented at the 6th European Gender Research Conference, Lodz, Poland, August 31- September 3, 2006.

Chapter 4

Climate Change and Human Rights: Making the Case for Viliui Sakha of Northeastern Siberia

Susan Crate

Abstract

Increasingly anthropologists are encountering the issues of global climate change with their research partners and realizing that environmental and cultural change, far beyond the reach of restoration, is occurring. In this article my central aim is to bring to light the cultural implications of global climate change in order to locate theoretical frames and research approaches to develop a cognitive/perceptual approach, that can inform those of us conducting research with indigenous communities and climate change, from impartial observers into the realm of action-oriented researchers. I explore this "anthropological awakening" vis-à-vis my own experience encountering Viliui Sakha elders' observations and perceptions of climate change in their homeland. Viliui Sakha are native horse and cattle breeders inhabiting the Viliui River regions of the Sakha Republic, Siberia, Russia. Their newest challenge are the local effects of global climate change. Interviews with inhabitants in 2004 revealed that 90% expressed their concern that global climate change was causing unprecedented change and threatening to undermine subsistence. These testimonies build a strong case that climate change is intimately an issue of culture and one that poses human rights offenses for Viliu Sakha in the areas of the right to use and enjoy property, the right to life, physical integrity and security, and the right to enjoy the benefits of culture. Considering that the changes observed by Viliui Sakha are the same across much of the circumpolar north, this project has broader implications and applications for indigenous inhabitants of the Northern Dimension Policy area.

Introduction

This chapter inductively explores the links between climate change, culture change and human rights via a case study of the local effects of global climate change (GCC) for Viliui Sakha, indigenous inhabitants of northeastern Siberia, Russia with whom I have worked since 1991. My central aim is to bring to light the cultural implications of GCC in order to highlight how the unprecedented

environmental change due to GCC is presenting human rights issues by impacting specific peoples, their lands and their heritage.

To these ends I first introduce my field setting and Viliui Sakha, share their climate change observations and insights, talk about their knowledge of regional climate change information and events, and explore the cultural and human rights implications.

Encountering GCC in Viliui Sakha Communities

Sakha are Turkic-speaking native horse and cattle breeders of northeastern Siberia, Russia. Their Turkic ancestors migrated from Central Asia to southern Siberia around 900, then migrated northward, along the Lena River, to their present homeland beginning in the 1200s. They inhabit a sub-arctic region, characterized by continuous permafrost with annual temperature fluctuations of 100° Celsius from -60°C (-76°F) in winter to +40°C (104°F) in summer. Viliui Sakha, have thus far been successful based upon their adaptation of a southern agropastor[1]alist subsistence to an extreme subarctic environment, and adaptation to the throes of Russian colonization and Soviet and post-Soviet forces (Crate 2002; 2003a; 2006b).

Today the majority of rural Viliui Sakha communities practice a household-level food production via a system termed "Cows-and-Kin," focused on keeping cows and exchanging labor and products with kin (Crate 2003a; 2006b). They also rely heavily other subsistence production including gardens and greenhouses, forage (hunting, fishing and gathering) and other domesticates including horses, pigs and chickens. Theirs is a mixed cash economy with most of their cash originating from state transfer payments in the form of state subsidies and pensions.

Towards the end of the 2004 field season working with Viliui Sakha on a community sustainability project,[5] 90% of participants expressed their concern about local climate change,[2] that they were seeing unprecedented change in their

[1] -2006 NSF project entitled, Investigating the Economic and Environmental Resilience of Viliui
Sakha Villages: Building Capacity, Assessing Sustainability, Gaining Knowledge, engaging local Viliui Sakha communities in defining sustainability and identifying barriers preventing them from realizing those definitions.

[2] We administered surveys to a stratified sample of 30% (Elgeeii: n=63, Kutana: n=24) of all households surveyed by Crate in 1999-2000 (Elgeeii: n=210, Kutana: n=79). The survey instrument was developed based upon both the communities' definitions of sustainability generated during the first field season of the project and standardized questions used in the Survey of Living Conditions in the Arctic project (http://www.arcticlivingconditions.org/).

local areas and it threatened their subsistence (Crate 2006a).[3] In response to this result, in summer 2005 we worked with village youth, already engaged in our project's elder knowledge initiative (Crate 2006c), to interview 33 elders about their local observations of climate change. We asked a simple set of questions about what elders observed, how their lives were affected, what the causes were and what the future would bring.

We found that elders possess ecological knowledge about how the climate was and has changed. In lieu of availability of comprehensive local climatic data,[4] village elders' knowledge is vital. Most elders offered testimony similar to this one emphasizing a definite change in the climate,

> *The climate is definitely different from before. When I was little, the winters were very cold, minus 50-60 degrees. When we spit, it froze before it hit the ground and flying birds sometimes would freeze and die. The summer was a wonderful hot temperature and the hay you just cut would dry very quickly. In the last few years the climate has changed. We have rain, rain, rain all the time and winter comes late and so does spring. For people who live with a short summer when there needs to be the right weather to accomplish all for the winter and there is cool rainy times so that the hay does not dry and has to sit and sit and the quality is bad because of that. It is the right time for haying but the conditions are all wrong.* -- male Sakha elder, b. 1938

So what are the changes people are observing? For one, Sakha elders reported that they can't read the weather anymore,

> *From long ago we could read the weather and know what weather would come according to our "Sier-Tuom" (Sakha sacred belief system). But we can't do that anymore.* -- female Sakha elder, b. 1942

This is particularly urgent in the extreme environment of the arctic where each day of summer is crucial to winter survival. Elders also commented that the timing of the seasons had changed. Spring and fall now come several weeks late,

> *When I was little, we finished school on the 18th of May and there was already new grass and the cows were grazing. Since then spring has been later and later and later.* -- female Sakha elder, b. 1939

[3] This was a collaborative project involving myself, one research assistant from the U.S., a research assistant in each of the four villages, and the direct involvement of the communities themselves. Hence, my use of the pronoun 'we.'

[4] There are regional stations that provide data on a Republic-wide level. However, these data are not translated into public information specific to the villages where these elders live.

This change of seasons jeopardizes winter survival. In addition to the seasons arriving later, elders said that the climate had softened, referring again and again to Jyl Oghuha,

> *Winters have warmed and summers are not so warm. All is softer. The north is especially warming. It will be cold in winter and suddenly get warm in winter. It was never like before. Strong cold held for months. We have the legend about the* ***bull of winter losing it horns.*** -- male Sakha elder, b. 1925

Additionally, two qualities of the climate, both critical to survival in the north, are reported to be different: a tendency towards long periods of calms and a relative lack of humidity. An elder commented,

> *The weather changes very very suddenly. This year it was hot in June then very cold and windy. Fall is also sudden. Snow will suddenly fall and then there will be very warm days. Then, in winter it was -40 degrees and the next day, very suddenly, it was +3 or +4 degrees.* -male Sakha elder, b. 1938

The summer heat is no longer dry but laden with humidity that stifles in high temperatures, "Before it got very hot also, like it does now, but there was air—now it gets hot and you can't breathe (humidity)." Both the lack of calms and of humidity make the Viliui Sakhas' environment that much more challenging to negotiate. Although these barriers are still surmountable, elders report that family members spend more time in the cyclical work demands due to the increased challenge that these climate changes pose. Several elders commented on the arrival of new species from the South and the loss of familiar species,

> *Birds are now coming that we have never seen before. A lot of unknown birds and animals are coming this way. Sakha Republic has warmed and the animals come this way.* - female Sakha elder, b. 1944

The arrival of new species includes a variety of insects that prey on many of the garden and forage plants that Sakha depend on. Elders talked about other common observations of changes in their local environment, including increased rain during the haying season, too much winter snow, increased occurrences of thunder, a change in the quality of sunlight, and many new insects. Many also correlated these changes with their people's health suffering and more human diseases.

We next asked elders how the climate change was affecting people's daily lives. First and foremost, they talked about the effects on harvesting forage for their animals,

> *It ruins the hay harvesting when it rains for 2 months solid. There is no winter forage for our cows and horses. Even if you plan to work every day at the hay, the weather keeps you from it. Every day it is raining. The land is going under water and the hay lands are smaller and smaller and if you keep a lot of*

> *animals, it is very hard. The hay itself has less nutrition and then when it is cut and lays and gets wet and dries many times, it also loses its nutritious quality.* -male Sakha elder, b. 1932

Second they talked about the negative impact that climate change has had on their ability to raise enough food to see them through the long winter,

> *So much water is bad for the garden. Potatoes rot in the ground and there are many new insects. Gardens are very late. The water and cold mean we plant potatoes a month late and some not until July.* -female Sakha elder, b. 1930

Next elders talked about how difficult it has become for their horses, who spend all winter outside and dig through the snow to find fodder. In the last decade elders have witnessed increasing amounts of snow, due to warmer winter temperatures,[5] and an impervious ice layer beneath the snow, from a freeze/thaw that occurs commonly in the fall with warming, that prevents the horses from reaching fodder,

> *Then in the fall, the snow falls early and then it melts and makes a layer of ice under the snow and the horses can't get through the ice to feed. This year lots of animals died and especially horses who could not get through the deep deep snow to find their food.* -male Sakha elder, b. 1935

Elders then expressed concern about hunting, a supplemental source of food for many contemporary households, especially in the post-Soviet context,

> *We hunters can't hunt. I go trapping in January when the snow is thinner. But as the snow is deeper I can't go and the deep snow is bad because dogs can't run and horses can't walk. In spring and fall hunters also can't hunt because there is so much mud and boggy land.* -male Sakha elder, b. 1933

Not only are hay, hunting and foraging areas diminished due to flooding, all land areas are threatened. In one of our four research villages, there is deep concern about how water in inundating the grazing and gardening areas in the village center, another source of sustenance in these communities, "all the water ruins the usable areas near our homes— it diminishes all our land—with all the water, no one has any land anymore."

Elders also mentioned that they noticed the land was sinking in places, "the flat fields are sinking in and we want to know why—perhaps the permafrost is melting?" The most graphic of these land sinking accounts were tellings of how an island near the village of Kuukei is submerging,

[5] Typically it snows in these areas from mid-September to mid-November and then again from midFebruary to mid-March. In the deep winter it is too cold to snow. In the last decade or so, as winter temperatures are milder, it tends to snow for longer periods in both the fall and spring and the cold period of no snow is increasingly briefer.

> *We have an island on the lake but now it has fallen. I have been watching for the last 10 years and I see this happening.* - female Sakha elder, b. 1933

However important it is to understand if the island is in fact sinking because of permafrost melting, and whether the melting is in fact due to climate change,[6] when I heard these testimonies I was more concerned and curious about how the perception of the land actually sinking is affecting how Viliui Sakha orient themselves to their environment. Their sense of place and their understanding of "homeland" are both directly tied to an ecosystem dependent on water in its solid state. Although feeling "at home" in such icy confines is foreign to most of us, it is the familiar and the understood territory of comfort for northern inhabitants (Nuttall 1992). This was clear when we asked, "Isn't it good that it is not so cold in winter and not so hot in summer?" In response, elders unanimously argued to the opposite:[7]

> *It is not bad to have warm winters, being an old person, it is great! But as Sakha people, we need strong cold here. It is how our lives are organized and how the nature works here. The big cold is good. The diseases are gone. When it is warm it snows too much and it is not warm or cold. The winter warmth affects people's blood pressure. And the heat in the summer is different, humid and very hard for people to go. It is bad for the way of life here and for survival, the nature, people, animals and plants here are supposed to have very cold winters and very hot dry summers. That is the best for all life here.* - female Sakha elder, b. 1929

When we asked elders how they thought these changes would affect the future, all felt that conditions would progressively get worse,

> *As it gets warmer and warmer, the permafrost will melt and our land will be a permanent swamp and we won't be able to do anything--no pastures, no hay fields, just the high areas will remain. If it continues, then the permafrost areas will stop being frozen and it will all melt.* - male Sakha elder, b. 1936

Many also made the connection between warming and its effects on health,

[6] Many of the pastures of the Viliui Sakha communities are located in thermokarst depressions known under the local name *alaas* (Crate 2006b: 9-11). *Alaas* are characterized by very specific processes of freezing and thawing, permafrost degradation but also permafrost build-up. See Washburn (1979: 274) for an illustration of *alaas* development cycle.

[7] Granted shorter winters may actually be beneficial for cattle and horse breeding. Horses and cattle will spend less time in the stables and barns (and more time on the pastures) if the annual average temperature increases. However, more precipitation (snow) and a higher frequency of freezing/thawing events will have an adverse effect.

> *The worst part is that diseases will multiply in the future if it continues to get warmer and warmer. People's lives will get shorter with all the disease and no one will be able to keep animals here anymore.* -female Sakha elder, b. 1944

Viliui Sakha elders' testimonies of the local effects of GCC reveal no debate of whether climate change is occurring. Like most indigenous cultures practicing subsistence, they are, by default, ethnoclimatologists. With a continuous stream of experiential data, they know things are changing.

The Cultural Implications of Global Climate Change and Indigenous Peoples

Both the transformation of their symbolic culture,[8] represented here by *Jyl Oghuha,* and of their subsistence culture, the increasing challenge to maintain their herds as warming continues, reframe the implications of unprecedented climate change. I argue that climate change, in causes, effects, and amelioration, is intimately and ultimately about culture— in that climate change is caused by the multiple drivers of western consumer culture, transforms symbolic and subsistence cultures, represented by the Viliui Sakha case here, and will only be forestalled via a cultural transformation from degenerative to regenerative consumer behavior.

As the Viliui Sakha case shows, the effects of climate change are not just about communities' or populations' capacity to adapt and exercise their resilience in the face of unprecedented change. Climate change is about the relocations of human, animal and plant populations to adjust to change, as witnessed by the recent resettlements of indigenous refugees to safer ground (Tuvalu, Shishmaref, etc.). Lost with those relocations are the intimate human-environment relationships that not only ground and substantiate indigenous worldviews, but also work to maintain and steward local landscapes. In some cases, moves also result in the loss of mythological symbols, meteorological orientation and even the very totem and mainstay plants and animals that ground a culture.

Researchers need not be over confident in our research partners' capacity to adapt. Although it seems completely plausible that highly adaptive cultures will find ways to feed themselves even if their main animals and plants cannot survive the projected climactic shifts. As anthropologists we need to grapple with the cultural implications of the loss of animals and plants that are central to daily subsistence

[8] In this article I use the term 'culture' to refer to both the series of prescribed human activities and the prescribed symbols that give those activities significance; both the specific way a given people classify, codify and communicate experience symbolically and the way that people live in accordance to beliefs, language, and history. Culture includes technology, art, science, and moral and ethical systems. All humans possess culture and the world is made up of a diversity of cultures. Accordingly, I use the term in both its singular and plural forms.

practices, cycles of annual events and sacred cosmologies. The cultural implications could be analogous to the disorientation and alienation and the loss of meaning in life that happens when any people are removed from their environment of origin, like Native Americans moved onto reservations (Castile and Bee 1992; Prucha 1985; White 1983). The only difference is that the communities experiencing the effects of climate change are not the ones moving—their environment is.[9] As the earth literally changes beneath their feet, it is vital to understand the cognitive reverberations and cultural implications to a people's sense of homeland and place.

If we agree, as Keith Basso convincingly argues, that human existence is irrevocably situated in time and space, that social life is everywhere accomplished through an exchange of symbolic forms, and that wisdom "sits in places" (1996:53), then we need to grapple with the extent to which climate change is and will increasingly transform these spaces, symbolic forms and places. It follows that the result will be great loss, of wisdom, of the physical make-ups of cosmologies and worldviews, and of the very human-environment interactions that are a culture's core (Steward, 1955; Netting 1968, 1993). As anthropologists, we need to look closely at the cultural implications of the changes global warming has and is bringing.

Many indigenous groups in areas where climate change is having the most profound effects, are questioning their ability to adapt, "the projected magnitude of climate change would stretch this [our] adaptive ability to the breaking point"(Watt-Cloutier 2004:2). Indigenous peoples are not passive victims of the effects of climate change. In fact, the opposite is the case—there has been a swell of advocacy by indigenous peoples in response to the local effects of climate change. One example is the petition to the United States by the Inuit Circumpolar Conference (ICC) to consider climate change in the Arctic and the U.S.'s intrinsic role in reducing greenhouse gases as a way to mitigate (ICC 2005). Past president of ICC,

Sheila Watt-Coultier's testimony explicitly posits climate change as a human rights issue, "Inuit are taking the bold step of seeking accountability for a problem in which it is difficult to pin responsibility on any one actor. However, Inuit believe there is sufficient evidence to demonstrate that the failure to take remedial action by those nations most responsible for the problem does constitute a violation of their human rights -- specifically the rights to life, health, culture, means of subsistence, and property" (2004).

[9] I take poetic license here by saying that "the environment moves." It works well within the analogy. I fully acknowledge that the environment cannot move but that it changes.

Conclusion

Viliui Sakha testimonies show that climate change is ultimately about culture change and presents human rights abuses in at least three areas: 1) the right to use and enjoy property; 2) the right to life, physical integrity and security; and 3) the right to enjoy the benefits of culture. On the global scale, I also argue that the causes and effects of climate change are about people and power, ethics and morals, environmental costs and justice, and cultural and spiritual survival. Scholars are beginning to address the equity and justice implications of climate change (Thomas and Twyman 2005).

On a temporal scale, the effects of climate change are the indirect costs of imperialism and colonization—the "non-point" fall-out for peoples who have been largely ignored. These are the same peoples whose territories have long been a dumping grounds for uranium, industrial societies' trash heaps, and transboundary pollutants. This is environmental colonialism at its fullest development—its ultimate scale—with farreaching social and cultural implications. Climate change is the result of global processes that were neither caused by nor can they be mitigated by, the majority of climate-sensitive world regions now experiencing the most unprecedented change. Thus indigenous peoples find themselves at the mercy of and adapting to changes far beyond their control.

Ironically, climate change offers humanity an opportunity for a quantum leap in sustainable development and peace making. If international cooperation is strengthened in response to the threats to human security and human rights that climate change does and will increasingly bring, then international stability, governance and development can also benefit. To the extent that the changes I am encountering with Viliui Sakha are the same sorts of changes occurring not just in the Arctic but for most indigenous groups inhabiting climate-sensitive ecosystems and depending on subsistence resources worldwide, these points apply also to the indigenous inhabitants of the Northern Dimension Policy area.

We can applaud the Northern Dimension Policy cooperative declaration and its continued work on climate change. At the same time, it will remain important for this initiative to scrutinize its existing and planned efforts to be sure they are rigorous in terms of working side by side with communities on local scales in order to properly address issues of culture and human rights as needed.

References

Basso, Keith. 1996. Wisdom sits in places: notes on a western Apache landscape, *In* Basso, Keith and Steven Feld, eds. 2009. *Senses of Place*. Santa Fe, N.M: School of American Research Press.

Castile, George Pierce and Robert L. Blee, eds. 1992. *State and reservation: New perspectives on federal Indian policy*. Tucson: University of Arizona Press.

Crate, Susan 2008. Gone the Bull of Winter? Grappling with the Cultural Implications of and Anthropology's Role(s) in Global Climate Change. *Current Anthropology,* 49 (4), August 2008: 269-595.

---. 2006a. Investigating local definitions of sustainability in the Arctic: Insights from post-Soviet Sakha villages. *Arctic*. 59 (3): 115-131.

---. 2006b. Cows, kin and globalization: An ethnography of sustainability. Walnut Creek: Alta Mira Press.

---. 2006c Elder knowledge and sustainable livelihoods in post-Soviet Russia: Finding dialogue across the generations. *Arctic Anthropology*. 43(1): 40-51.

---. -2003a. Viliui Sakha post-Soviet adaptation: A subarctic test of Netting's smallholder theory. Human Ecology 31(4): 499-528.

---. 2002 Viliui Sakha oral history: The key to contemporary household survival. *Arctic Anthropology* 39(1): 134-154.

ICC 2005. Inuit petition inter-American commission on human rights to oppose climate change caused by the United States of America. Available online at http://www.inuit circumpolar.com/index. php?ID=316&Lang=En (accessed November 21,2007).

Netting, R. McC. 1968. Hill farmers of Nigeria: Cultural ecology of the Kofyar of the Jos Plateau. Seattle: University of Washington Press.

---. 1993. Smallholders, householders: Farm families and the ecology of intensive, sustainable agriculture. Stanford, CA: Stanford University Press.

Nuttal, M., 1992. Arctic homeland : kinship, community and development in Northwest *Greenland*. Toronto : University of Toronto Press.

Prucha, Francis Paul. 1985. *The Indians in American society: From the Revolutionary War to the present.* Berkeley: University of California Press.

Steward, Julian H. 1955. *Theory of culture change*. Urbana: University of Illinois Press.

Thomas, David and Chasca Twyman. 2005. Equity and justice in climate change adaptation amongst natural-resource-dependent societies. *Global Environmental Change* 15: 115-124.

Washburn, A. L., 1979. Geocryology: a survey of periglacial processes and environments. London: Edward Arnold.

Watt-Cloutier, Sheila. 2004. Climate change and human right" in Carnegie Institute's *Human Rights Dialogue* special issue on "Environmental rights" http://www.cceia.org/viewMedia.php/prmTemplateID/8/prmID/4445

White, Richard. 1983. *The Roots of dependency: Subsistence, environment, and social change among the Choctaws, Pawnees, and Navajos.* Lincoln: University of Nebraska Press.

Chapter 5

Impacts of climate change in everyday life in the Nenets Autonomous Okrug

Tuula Tuisku

"Winter lasts eleven months and the rest is summer," is a Russian joke about seasons in the Russian Arctic. In the Nenets Autonomous Okrug newcomers complain of long, cold and dark winters. If, however, for the southerners, winter is a cold and unpleasant season, for the local native population it is not. The native population is well adapted to long and cold winters. The cold is not a problem because warm clothes protect from low temperatures: an ideal winter sees temperatures between -10 and -20 ºC. This is a "mild winter, but not warm," with not too many snowstorms and definitely no fluctuation of temperatures.

With temperatures rising all over the northern territories, however, winters are not what they used to be. In recent years the winters have become shorter and warmer. Global warming causes rising temperatures, especially in winters, increasing precipitation, rising river flows, declining snow cover, permafrost thawing and diminishing lake and river ice, etc. (ACIA 2004,12-13). Until now the winter has been the longest season in the Okrug lasting 6-8 months. The native population is well adapted to cold and consider it as a part of their belonging to the area (cf. Crate 2008b).

In this paper I discuss how some aspects of climate change are affecting the everyday life of the rural population in the Nenets Autonomous Okrug. Until recently in Russia there have prevailed a skeptical attitude towards climate change among many researchers, officials and mass media (cf. Forbes and Stammler 2009, 3), but this is changing (see Rosgidromet 2008a; Kokorin, Karelin and Stetsenko 2008). However, although some Russian scientists do research about environmental changes, there are only a few publications on indigenous observations of climate change in Russia. The indigenous voice is not heard like in North America (Krupnik & Jolly 2002). An American anthropologist Susan Crate has studied impacts of climate change among Viliu Sakha (Crate 2008a; 2008b; this volume). In some western planned and funded projects impacts of climate change on northern population have been studied and in some aspects also in northern Russia (Keskitalo and Kulyasova 2009; Rees et al 2008; Forbes and Stammler 2009).

Also the Russian WWF has conducted some surveys concerning climate change in Chukotka, Taimyr and Kola Peninsula, where indigenous people have been mentioned (Kokorin, Minin and Shepeleva l 2002; Kokorin, Minin and Shepeleva 2003a; Kokorin, Minin and Shepeleva 2003b). The Russian WWF has also conducted a survey among coastal indigenous people in Chukotka (Kavry and Boltunov 2006). The Arctic Climate Impact Assessment provides basic information about climate change in the Arctic, but includes also indigenous people (ACIA 2005). There is also now available good information about climate change done by Russian scientists, published by the Federal Service for Hydrometerology and Environmental Monitoring "Assessment report on Climate Change and its consequences in Russian Federation" (2008a). However, there is no mention of indigenous peoples.

The Nenets Autonomous Okrug is located in north-west Russia, west of the Ural Mountains. The area is mostly tundra, although in the southern areas there is forest tundra. The population, 42 000 people, consists of Russians, Nenets, the indigenous people, and Komi. The territory is sparsely populated; 0,2 people in km². More than half of the population lives in the city of Naryan Mar and in a working settlement next to the city. The majority of Nenets and Komi live in rural areas, but there are also so called old settler Russians, whose ancestors have arrived in the area since 16th century. Most of the Russians have arrived in the 20th century. The paper is based on my cultural anthropological fieldwork in the NAO since 1996, but especially during the period between 2005-2006 and 2008, when I discussed changes in the weather and environment with the rural population. Since 1996 I have lived in villages of Nelmin Nos, which is a Nenets village, and Krasnoe, where lives both Nenets, Komi and Russians, and also in the tundra in Nenets reindeer herding camps. In 2008 I visited four old Russian villages, Velikovisochnoe, Labozhkoe, Shchelino and Toshviska. All these villages are located on the Pechora River, in the central part of the NAO.

In the NAO there are about forty rural settlements. The villages are located on the river valleys, such as Pechora, Oma, Vizha, Indiga, and there are also a few found on the Arctic Sea coast. The villages can be divided into old Russian/Komi villages and new Soviet villages, such as Nelmin Nos and Krasnoe. The old villages were established by the villagers themselves on the big rivers, before the Soviet period. The new villages were established by the officials to settle nomadic Nenets and Komi in the 1930-40s. In the Soviet period all livelihoods, reindeer herding, fishing, hunting and dairy farming, were organized inside collective farms, kolkhozes. Most villagers worked for the kolkhozes, but after economic reforms of the 1990s only a small number of the villagers work in the agricultural cooperatives, successors of the kolkhozes. The State sector is an important employer, but many villagers are officially unemployed.

Local renewable resources are important to all the villagers. Rural families get their incomes from many different sources. Only the reindeer herders in Krasnoe, who live most of the year in the tundra with their families, get their main income only from reindeer herding. In Nelmin Nos families of the herders live in the villages. The male herders live and work in the tundra in one or two months shifts while their wives and children live in Nelmin Nos. In Krasnoe reindeer herders belong to two different reindeer herding enterprises, but today in Nelmin Nos the herders are members of several small obshchinas, herding and fishing communities.

Fishing is an important source of food for all and many villagers fish for markets, although only a few hold the official licence to fish. In Krasnoe, Velikovisochnoe and

Labozhkoe there is still the cooperatives' dairy farm, and in Shchelino only a calf farm of the Velikovisochnoe's cooperative. In the Russian villages and Krasnoe a couple of villagers have a cow or two in their own households. Growing potatoes and, in smaller scale, other vegetables is done by most villagers in Krasnoe and Russian villagers. In all six villages most men hunt and most families pick berries, some also for markets. In each village there are a couple of private entrepreneurs with a small private store. In Krasnoe and Nelmin Nos some villagers make traditional Nenets handicrafts for sale. For the Nenets, and reindeer herding Komi, reindeer meat is the main food, while for the old Russians fish and potatoes are the main food.

Traditionally, before the Soviet collectivization, the Nenets and a part of the Komi population were nomadic reindeer herders, fishermen, and hunters. The Russian old settlers and the other part of the Komi lived settled in the villages getting their livelihood from fishing, dairy farming, and hunting. Although the NAO is mostly in tundra zone, there are natural meadows on the big river valleys. However, the cattle can be outside only for 2-3 months per year.

Thus, the rural population, and also those who are not engaged in professional reindeer herding or fishing, use renewable resources, and spend a great deal of time outside. Reindeer herding has a symbolic meaning for the whole Okrug, but for the Nenets it is the backbone of their culture.

Is climate change really taking place?

During my fieldwork in 2005-2006, I began to ask people whether they have noticed any impacts of climate change. To my surprise, I noticed that many people still doubted whether climate change was taking place at all. Some even said that the idea of climate change is American propaganda, an attempt to gain economic and political power. When they heard that the then president of the Unites States

himself doubted whether climate change was truly happening, they were surprised, because for them climate change is something that is coming from the West and thus, it is suspicious.

Some people said that something is happening, but they would not use the term "climate change" or even consider it to be a new phenomenon. They see the changes, which are taking place today, to be a normal phenomenon in northern nature. Nothing is stable in our environment, they comment. However, there are people who are worried about the changes that are taking place and see that they differ from the normal changes.

All rural population, not just reindeer herders and fishermen, - who work and spend a considerable amount of time outside and to whom it is important to follow weather and environment - but also those, who live permanently in the villages, follow from day to day changes in weather and environment. In everyday speech people discuss weather: is it different from the previous year, did snow melt in normal time, when did the rivers freeze-up? Every time when I return to the NAO from Finland people tell me how the summer or winter was, and ask how it was in Finland. In letters which I get from the NAO, people tell me about cold days and berry harvests, and are sure to mention if something strange has taken place. If something odd happens during my fieldwork or prior to it, it is discussed widely. Moreover, people recall when something like that took place earlier. It could have been in the 1970s, or told by a grandfather, or took place a couple of years ago. People know and remember what they have seen and what they have been told.

For successful herding and fishing it is important to know the environment in all its details. The herders have to know all the rivers, lakes, hills, swamps etc in their herding areas. Like the herders, fishermen too have to know rivers and lakes. Every morning, when the herders go out from their tent, they stop and look around to see if something has changed since yesterday and what kind of weather it is today. Alongside their migration routes, they have to remember permanent and changing elements. While herding the reindeer they have to read environment and weather and make a decision where to drive the herd. Thus, they recognize even the slightest changes and from the very beginning they are prepared to react on the changes, even though there are no changes every day. Crate calls indigenous peoples "ethno climatologists" (Crate 2008a, 88). They have to be prepared should something have changed as they may have to change their actions. Also bigger changes are nothing new or frightening to them.

Keskitalo points out, in her study of climate change in Scandinavia, that herders "have to respond to day-to-day changes in weather" (Keskitalo 2008, 138). In the life of the herders stability is unknown. However, many people say that during the last years some changes are taking place more often than during previous decades. Some of them find more permanent changes in climate and they are getting

worried. I have noticed that every year more and more people, to whom I talk, express their worries on changes which are taking place. The changes differ from normal changes. Most people spoke about short and unstable winters, fluctuation of temperature and long and warmer summers.

However, even some of those who think that there unusual changes taking place, considered that they are not caused by climate change. Some people told me that all these abnormalities result from rockets, which are launched from the Archangelsk oblast, and people's activities in cosmos. Crate met the same explanation among Viliu Sakha (Crate 2008b, 580-581). We have to remember that in general the northern and indigenous population in the Russian North face today multiple problems and challenges.

They are still struggling with economic and social problems caused by reforms of the 1990s, and the impacts of the oil and gas industry are challenging traditional livelihoods. In this sense, climate change is one problem among many others. Forbes and Stammler even doubt whether researchers could study impacts of climate change when people have social and economic problems (Forbes and Stammler 2009). However, it is important to notice all changes in the natural environment caused by other factors (pollution, nonrenewable resource extraction) and as well regulations on use of renewable resources such as fishing quotas or socio-political changes which have impact on traditional livelihoods.

Still, I have noticed during my fieldwork periods that people willingly speak about changes in climate and their environment despite economic and social problems. They or I do not necessarily use the term "climate change," because it is an odd term for them, but they know what is going on around them. Moreover, climate change has not become a political and current issue in the NAO or anywhere else in northern Russia. Moreover, even in the NAO different reindeer herding enterprises are struggling with different problems and as well each village and social group are facing their own challenges. Nelmin Nos 'and Krasnoe's reindeer herders have faced partly different problems since the collapse of the Soviet Union. In Krasnoe for reindeer herding enterprises the current problem is the oil and gas industry, while in Nelmin Nos reindeer herders are struggling with economic problems(Tuisku 1999; Tuisku 2002; 2003). The village populations have different problems (Tuisku 2003; Tuisku 2006; Tuisku 2008). Still, people's worries about shorter and warmer winters are confirmed by the *Assessment Report on Climate Change and Its Consequences in the Russian Federation*. During the last one hundred years in the European part of Russia, temperatures have risen 1,17 °C and during past three decades 1,5 °C (Rosgidromet 2008b, 13-14). By the middle of the 21th century in the European territory of Russia, days with temperature below zero will decrease by 15-30 days and temperature will increase more during the winters (4-6 °C) than summers (1-2°C) (Rosgidromet 2008b, 39 -41). For us

another important factor is changes in precipitation, which is more difficult to evaluate. In northern Russia precipitation will increase during the summer time, but it is noticed in the assessment that there will be more rain precipitation rather than solid snow precipitation in the winters. (Rosgidromet 2008b, 44). Moreover, river flow in northern rivers, including the Pechora River, will increase (Rosgidromet 2008b, 41). Also warming will effect the times of freeze-up and break-up of the rivers, which prolong the navigation period, but reduce the frozen period, when the rivers are used as roads to reach remote regions (Rosgidromet 2005, 20).

Moreover, there will be changes in vegetation. First there will be more shrub and thermophilic grass by 2020-30s, by 2050 shrub tundra will replace bog vegetation and finally, by the end of the 21 century, there will be more trees and the tree line will move further to the north (Rosgidromet 2008b, 54). Warming will also change fish stock, species, and migration.

Dividing a year into seasons can be done differently by different groups and livelihoods. In the Encyclopedia of the Nenets Autonomous Okrug it is told that in the western parts winter lasts 180 days, but in the east 230 days (Korepanova 2001, 15-18). Apparently this is the period when temperatures are below zero. The herders divide seasons according to activities, not according to temperature or snow cover. Spring starts with calving season in the end of April, although there is still lots of snow left until middle or end of May. Spring ends with spring corral in the middle or end of June. Autumn starts already in August with autumn corral. Autumn lasts until slaughter in November, although there has been snow cover already this month. Difficult periods for herding are spring with calving, summer and autumn with the need of constant supervising of the herd. Winter, after slaughtering and before calving, is an easy time for herding without constant supervising. In the villages I have noticed differences in defining seasons: for example spring lasts only for the month of May when snow melts, summer is three months, autumn covers September and October before snow falls. Thus, winter lasts from November to April.

Shorter and milder winters in the life of the herders

Reindeer herding is the main land use in the NAO, and more than 70 % of the Okrug's territory is reindeer pasture. In the NAO reindeer herding is still nomadic: the reindeer herders migrate between different seasonal pastures. Most reindeer herders spend winter in the forest tundra and for summer and autumn migrate to the tundra area, while some stay in the tundra also during winter, but still migrate. For each season there are special pastures. From the herders' point of view long, cold, and stable winters are the easiest time for herding and living. Reindeer graze peacefully digging lichen under the snow, while reindeer skin clothes and dwellings

protect nomadic herders from cold. The herds are not supervised all the time, but visited once a day. Winter is a time for vacation and social encounters. Traveling is easy on the snow. There is a need for fewer draught animals than in seasons without snow cover. In the winter there are three draught reindeer to pull the driving sledge and two to for other sledges, while in summer there are two more reindeer for the driving sledge and one more for other sledges. As well as requiring fewer draught animals in the winter, one can travel directly which is not possible without ice cover, when lakes and rivers must be bypassed as they cannot be crossed at all.

For reindeer, winters with temperature below zero and a snow cover are the best. When temperature is steadily below zero, air is dry and reindeer feel fine. Also the herders have no problems in cold and dry air. But when there is fluctuation of temperature problems start. When the temperature is over zero, snow starts to melt and gets wet. It also often rains during warm periods making snow even wetter. However, when the temperature falls below zero, snow freezes again and develops a layer of crust. Reindeer have problems digging lichen through layers of crust. In the NAO there is no supplement feeding system like there is in Scandinavia: the reindeer live only on natural food which they dig themselves. Thus, the reindeer starve and might die. The herders have to spend a lot of time to find new pastures and supervise the herds more carefully. Most people agree that during recent winters there have been more frequent fluctuations of temperature and several layers of crust has formed.

During recent years the rivers have frozen late, in November and December, and thus, the return from summer pastures is delayed. During every migration the herders with their herds have to cross several rivers. Some rivers are so deep or the stream is so high that it is impossible to cross them without ice cover. The herders cannot drive the herds to slaughter places, which are often located next to the early winter pastures. Because the herders have to wait for the freeze up, slaughter will take place later than usual and the reindeer will lose weight, which means less income for herders. Even if the herds could arrive to slaughter places, warm days during slaughter period are harmful. Only a couple of reindeer herding enterprises have facilities to preserve meat in cold storage. Mostly slaughtering takes place outside where carcasses immediately freeze and then carcasses are transported by tractors, trucks, or helicopters to consumers. But during warm days the carcasses do not freeze, and get spoiled. Either the enterprises have to postpone slaughter from November to December-January, or they have to build new facilities. Postponing means that the reindeer in December-January have lost weight and the herders and herding enterprises get less income. However, the herding enterprises can not afford to build new slaughtering facilities because of the low price of the meat.

Also early thawing of the rivers causes problems. The herders have planned their migration routes according to knowledge which they have gained during their life

time and which the previous generations have passed on to them. However, each year the herders have to calculate their actions based on many factors. Until now, they have been able to solve the problems and make a migration schedule in which all the needs of the reindeer are taken care of. During recent years thawing of the rivers has taken place earlier than people are used to, and it has surprised the herders. The herds and herding camps have still been in the winter pastures, on the wrong side of the rivers. Thawing in the Arctic takes place very quickly and causes floods. Crossing the rivers when the floodwaters are high is not possible. The herders have to wait until water levels are lower or migrate using different, longer routes.

In 2005, during my fieldwork in the tundra, early thawing surprised us all. One camp was stuck on the wrong side of a big river and they had to stay in the winter pastures until the beginning of June, when the water level was low enough. They could not reach their calving grounds at all. Another camp, which had several rivers on their migration routes, had to go around the rivers: they went upstream and crossed the rivers in places where the stream was still weak. However, instead of couple of days of migration they spent seven days in migration. It is important to reach calving pastures in time so that during calving season there would be no big migration for the herds. The calving season is the crucial time for results of herding, because the main income from herding is the produced meat.

The herders can start their migration towards calving pastures earlier, but with the fluctuation of temperature they cannot do anything. Moreover, if instability of temperature and weather causing cold nights and snowstorms continues during the calving season, it will result in high mortality of calves.

Summer temperatures have also risen in the northern areas. For reindeer herding hot summers are difficult. If it is hot, there are a lot of mosquitoes which bother both the reindeer and the herders. Moreover, the reindeer do not eat, and thus they do not gain weight. The reindeer, as well as the herders, prefer chilly summers with occasional rains so that there are fewer mosquitoes and other insects. The summer of 2008 was good for reindeer herding because it was mostly chilly and rainy. Also in the reindeer herding villages many people stated that they do not complain because this is good for the reindeer. However, in the Russian villages, many complained that because of continuous rains and chilly days, the potato harvest was very small and it was difficult to make hay.

Impacts in the villages

How are shorter and unstable winters affecting villages? As in the tundra among the reindeer herders, winter here is also the season of which people speak most and seem to like most. When in September 2008, villagers in Russian villages were

complaining about rainy summers, I asked if they would prefer a hot summer. No, was the answer. Hot summers are not welcomed by the villagers either. They say that they do not like it when it is too hot and there are a lot of mosquitoes. They are all inhabitants of cold areas.

Also for the villagers, the fluctuation of temperature during the winter time is crucial: it will affect fishing and travelling, What kind of summer it will be; whether chilly and rainy or hot and dry it will also impact livelihoods, not only fishing but also on dairy farming and potato growing. Fishing can be conducted most of the year except for the midsummer. The autumn fish season starts in August lasting until the freeze-up. Winter fishing is possible as long there is ice cover. Right after break-up of the rivers and lakes people fish a lot.

During winter time fishing takes place on the sea coast and inland lakes. To reach them one has to have a snowmobile. Until now winter fishing has been easy to organize. Thanks to the cold winters there has been no need for special facilities to freeze the catch and if needed small ice houses could have been built from local materials. Then, fish has been transported as frozen to the fish plant or villages. Today, when the winter temperature fluctuates and also rises above zero occasionally, it is difficult to predict if the catch will defrost during harvesting and transport and consequently be spoiled. Also in spring and autumn, thanks to the low temperature, fish can be caught and transported without ice. In September I saw how the catch was stored for a night just in a wooden hut as the temperature was just cold enough. Also for fishing chilly summers are welcomed. Climate warming will also change species, migration and movements of fish. Where and what to fish will be changed.

Surprisingly, dairy farming can be considered to be a traditional livelihood for the Old Russian and Komi settlers. In the Soviet time it was introduced also for the Nenets. Dairy farming is dependent on feeding for nine months of the year. Thus, there is a need for a lot of hay. The local natural meadows are on the moist soil and do not carry heavy vehicles during rainy summers. Today hay making in the dairy farms is highly mechanized. Hay does not dry when it is raining all the time. Therefore the quality of collected hay is low and may not sustain the herd for the whole winter. However, future warm summers promise more hay harvest, as well as potato growing. Potatos can grow in a cold or hot climate, but how much rain will affect the quantity of the harvest. As said, there are many households, especially in the Russian villages, who sell their potato harvest to Naryan Mar. Potatoes are transported to Naryan Mar by snowmobiles in the winter time. The Pechora River is a local highway and during the winter time there is a clear snowmobile track on the river. In the NAO there are no roads, expect from the city to Krasnoe. During the Soviet time there were regular boat and airplane connections between the villages and the city of Naryan Mar and the people did not face any problems to

travel thanks to the low price of the tickets. Actually, there was no need to travel often because all basic services were found in the village. Today people have more need to travel to the city to go shopping and to take care of official things, because services are getting fewer in the villages. In the 1990s the local population realized that they have to organize their movements themselves. People started to buy snowmobiles and boats. Although there is now a flight, boat or all terrain vehicle connections once or twice every month it to each central village is not enough and to smaller villages there is no centrally organized transport at all. There is not always room in the airplanes or helicopters or the ticket price is too high. For the rural population winter is a time for independent and easy traveling. On the snow and ice covered rivers it is easy to travel by snowmobiles, tractors, all terrain vehicles, trucks and reindeer between villages and to the tundra. The villagers can afford to buy a snowmobile and they can afford fuel for it. I often heard people claiming that during the past few years the snowmobile season has started later and later. In 2008 there was no proper "snowmobile track" in some places at all and there were several accidents when snowmobiles fell through the ice in the rivers.

Ice and winter roads on the tundra have been important for the local economy. They have allowed transport of goods to the villages and to the oil fields by trucks which are cheaper than by helicopters. Due to the mild temperature in beginning of winter, the making of the ice roads is delayed. Thus, the oil and gas companies need to transport more equipment by helicopters, which are expensive and require more fuel. Also the village population is effected by the shorter periods of transport on the land. It will be more costly to transport people and goods by helicopters. To the villages on the Pechora River and seacoast goods can be transported by ships but, to many inland villages and oil and gas fields, winter roads and helicopters are the only options.

The villagers also face other threats: permafrost thawing will destroy buildings and more crucial, increasing river flows, especially flooding in the spring time, can be critical. Krasnoe and Velikovychonoe are flooded partly every year. Houses on the village edge are under water and some people have to use a boat to get out of their house. If there will be more flooding every spring most houses will be flooded. For the villages there is a lack of the land to build in a better place. Either they will be flooded every year or move the village to a totally a new place. A village of Korekovka was closed and moved to Krasnoe in the 1950s. After that the population of Krasnoe has grown and new houses have been built on unsuitable places.

Warming climate will, however, shorten the heating season. The buildings are heated by firewood and coal, which are both imported. Today the heating season lasts 8-9 months. By 2015 the heating season will decrease by 3-4 months in Russia (Rosgidromet 2005, 13) Also the navigation season will be longer and thus more

goods can be brought from other parts of Russia by sea to Naryan Mar and by rivers to the villages.

Future with warm winters and summers

Temperatures are going to rise in the future and more during the winter time than in the summer. Today's winters will soon be history. Traditional livelihoods, reindeer herding and fishing, are all impacted by rising temperatures, which in the NAO manifests itself mostly with instability and fluctuation of temperature. Storage and transport of fish and reindeer meat have been based on chilly summers and cold winters. With rising temperatures there will be a need for special facilities to cool the catch and reindeer carcasses. For that, fuel is needed and although oil is extracted in the Okrug there are no refining facilities. Also, unstable and short winters will increase the demand for helicopters and airplanes, which require more fuel. Consequently, local transport will be more dependent on imported resources.

The important question is whether the local population can adapt to the changes. Reindeer herding in new vegetation zones, first with shrubs and then with trees, will differ from today's reindeer herding. The reindeer herders do not doubt that they will be able to change their modes of herding. They know examples of successful coping with new environments: for example a camp of Krasnoe's reindeer herders have changed their migration routes from the tundra to the forest tundra. They also know that some of their ancestors have changed their migration routes several times. Why, they ask, would they not be able to adapt this time? However, today there are many problems in the life of the herders; oil and gas industry, economic problems. And if there are several bad winters or summers in a row will reindeer herders survive those? They are integrated into the market system, which requires money annually. However, the Russian state has helped reindeer herding to survive difficult periods, for example in Chukotka, so that there has been no need for annual slaughtering.

How about the villages and the villagers, who live on fishing, dairy farming and potato growing? For them a longer growing season will open new possibilities to cultivate potatoes and vegetables. Dairy farming will have better possibilities with greater harvests of hay and the inside feeding period is shorter. But there might be dry seasons or continuous rain. However, fishing will change totally because of the changes of the fish stock and the need for cold storages.

Climate change will affect differently livelihoods both in the villages and tundra. There is a need for more research in different reindeer herding enterprises and among different livelihood groups in the villages. In this article I have not discussed all details concerning reindeer herding, fishing, or the village life. Impacts on oil and gas industry must be also studied.

But, are the cold winters gone which are familiar and to which people are well adapted? The local identity of the Nenets, Komi, and Old Russians is partly based on their ability to live in a cold environment without problems. This will be gone and there is a need to find new elements upon which to build the local identity.

References

ACIA 2004. Impacts of a Warming Arctic: Climate Impact Assessment. Cambridge University Press. http://www.acia.uaf.edu.

ACIA 2005. *Arctic Climate Impact Assessmen*t. Cambridge University Press. http://www.acia.uaf.edu.

Crate, Susan. 2008a. Climate Change and Human Rights: Making the Case for Viliui Sakha of Northeastern Siberia. In Proceedings of Calotte Academy 2007: New Northern *Dimension.* Lassi Heininen ed., Rovaniemi: University of Lapland: 81-92.

---. 2008b. Gone the Bull of Winter: Grappling with the Cultural Implications of and Anthropology's Role(s) in Global Climate Change. *Current Anthropology*, 49(4): 269-595.

Forbes, Bruce C. and Florian Stammler. 2009. Arctic climate change discourse: the contrasting politics of research agendas in the West and Russia. *Polar Research* 28: 28-42.

Keskitalo, E. Carina H. and Antonina A. Kulyasova 2009. The role of governance in community adaptation to climate change. *Polar Research* 28: 60-70.

Kavry, V. and A. Boltunov 2006. Nablyudeniya korennikh zhitelei pribepezhnikh paionov Chukoskogo avtonomnogo okruga. WWF, Rossiya. Available online at http://www.wwf.ru/resources/publ/book/196/. Accessed31.7.2009

Keskitalo, E. Carina H 2008. Climate Change and Globalization in the Arctic. An Integrated Approach to Vulnerability Assessment. London: Earthscan.

Kokorin, A.O., A..A. Minin., and A..A. Shepeleva eds. 2002. Chukotksii ekoregion. WWF. Moscow. Available online at http://www.wwf.ru/resources/publ/book/91/. Accessed 31.7.2009.

Kokorin, A.O., A.A. Minin. and A.A. Shepeleva eds., 2003a. Kolskii ekoregion. . WWF. Moscow. Available online at http://www.wwf.ru/resources/publ/book/54/. Accessed 31.7.2009 .

Kokorin, A.O., A.A. Minin and, A.A. Shepeleva eds. 2003b. Taimyrskii ekoregion. WWF. Moscow. Available online at http://www.wwf.ru/resources/publ/book/92/. Accessed 31.7.2009.

Kokorin A. 0., Karelin D.V. and A.V. Stetsenko. 2008. *The impact of climate change on* the Russian Arctic: analysis and paths to solving the problem. WWF-Russia, Moscow. Available online at http://www.wwf.ru/data/climate/wwf_arctica_eng_1.pdf. Accessed on 31.7.2009.

Korepanova, L.Yu. 2001. Nenetskiy Avtonomnyy Okrug. Entsiklopedicheskiy slovar'. Moskva: Dom Knigi "Avanta".

Krupnik, Igor and Dyanna Jolly eds. 2002. The Earth is Faster Now. Indigenous Observations of Arctic Enviroment Change. Fairbansk, Alaska: Arctic Research Consortium of the United States.

Rees, W.G., Stammler, F.M., Danks, F.S. and P. Vitebksy, P. 2008. Vulnerability of European reindeer husbandry to global change. *Climatic Change* 87: 199-217.

Rosgidromet 2005: Strategicheskii prognos *izmenenio klimata rossiikoi federatsii* na period do 2010-2015 gg. i ikh vliyaniya na otrasli ekonomiki Rossii. . Moskva. Available online at http://meteorf.ru/en_default.aspx, Accessed 19.2.2009.

Rosgidromet. 2008a. Otsenochnii doklad ob izmeneniyakh klimata I ikh posledstviyakh na territorii Rossiiskoi Federatsii. tom I. Izmeneiya klimata. tom II Posledstviya izmenenii klimata.[Assessment Report on Climate Change and Its Consequences in the Russian Federation] Federalnaya zluzba po gidrometeorologii I monitoring okruzhayushei sredi: Moskva. Available online at http://climate2008.igce.ru/v2008/htm/index00.htm. Accessed 31.7.2009.

Rosgidromet. 2008b: *Otsenocnyi doklad ob izmeneniyah klimata I ikh posledtvijyakh na territorii Rossiikoi Federatsii. Tekhnicheskoe rezyume* [Assessment Report on Climate Change and Its Consequences in the Russian Federation] Federalnaya zluzba po gidrometerologii I monitoring okruzhayushei sredi: Moskva. Availabe online at http://meteorf.ru/rgm3.aspx., Accessed 19.2.2009.

Tuisku, Tuula. 1999. Nenetsien ankarat elämisen ehdot tundralla ja kylässä. Poronhoidon sopeutumisstrategiat ja delokalisoitumisprosessi Nenetsiassa. Acta Universitatis Lapponiensis 23. Rovaniemi: Lapin yliopisto.

Tuisku, Tuula .2002. Nenets reindeer herding and industrial exploitation in Northwest Russia. *Human Organizations*, Vol. 61, No. 2: 147-153.

Tuisku, Tuula. 2003. Surviving in the oil age: co-existence of the reindeer herding and petroleum development. In Social and environmental impacts in the North. Methods in evaluation of socio-economic and environmental consequences of

mining and energy production in the Arctic and Sub-Arctic. Eds. Rasmus Ole Rasmussen and Natalia Koroleva. Dordrecth: Kluwer Academic Publications: 449-461.

Tuisku, Tuula. 2004. Northern societies in transition: change of villages from the collective farm's headquarter into a heterogenous community. In *Northern Dimensions and Arctic Environments. Proceedings of the Thule Science Day. November 25, 2003*. Kari Strand, Pirjo Taskinen and Kirsti Kallio eds.. Oulu: University of Oulu:.13-16.

Tuisku, Tuula. 2006. "V gostiakh na rodine. Iz kolkhoznoi bazy v rodnoi poselok. Issledovanie v dvukh severnikh poselkakh 2001-2004. [isiting a home land. From the kolkhoz bas to a home village. Research in two northern villages 2001-2004]". In "*Materialy nauchno-prakticheskoi konferentsii: Istorija, kultura, traditsii korennogo naselenija I promylennoe osvoenie severnykh regionov 5-7.4.2006,"* [Material scientificpractical conference: History, culture, tradition indigenous population and industrial extraction of northern regions 5-7.4.2006]. Naryan-Mar: Administratsiia Nenetskogo avtonomnogo okruga.

Tuisku, Tuula. 2008. Reindeer meat, fish, potatoes and bread. Food security of a northern community in the Nenets Autonomous Okrug, NW Russia. In *Arctic food security*. Duhaime Gerard and Nick Bernard eds. *Occasional Publications* No 58. Edmonton: Canadian Circumpolar Institute, CCI, University of Alberta, and Quebec: Centre Inter-universitaire de'etudes et de recherches autochtones CIERA, Université Laval:79-288.

Chapter 6

Inuit Foreign Policy and International Relations in the Arctic

Nadine C. Fabbi

> The conduct of international relations in the Arctic and the resolution of international disputes in the Arctic are not the sole preserve of Arctic states or other states; they are also within the purview of the Arctic's indigenous peoples. The development of international institutions in the Arctic, such as multi-level governance systems and indigenous peoples' organizations, must transcend Arctic states' agendas on sovereignty and sovereign rights and the traditional monopoly claimed by states in the area of foreign affairs.
>
> – *A Circumpolar Inuit Declaration on Sovereignty in the Arctic*, Article 4.2

Introduction

Inuit are emerging as influential actors on the world stage. They have been involved in international affairs for 40 years now or since Inuit delegates from Canada and Greenland attended the first International Arctic Peoples Conference in Copenhagen in 1973. Since then, Inuit political involvement has increased significantly. The Inuit Circumpolar Conference, now the Inuit Circumpolar Council (ICC), was created in 1977 and is one of the most effective indigenous organizations in the world today. Among its most successful achievements, the ICC worked with Arctic nation-states to draft the first international declaration on the future of the Arctic leading to the establishment of the Arctic Council in 1996. The ICC also successfully advocated for Permanent Participant status for indigenous organizations on the Council making the Council the first in history where indigenous peoples and nation-states are engaged on almost equal par in decisionshaping for the region. Most recently, the ICC released two international declarations – *A Circumpolar Inuit Declaration on Sovereignty in the Arctic* (2009), and *A Circumpolar Inuit Declaration on Resource Development Principles in Inuit*

Nunaat (2011) – inserting Inuit values and goals into the Arctic foreign policy dialogue. This emerging voice on the world stage is converging with a collaborative and cooperative approach to international relations on the part of Arctic nation-states – an effort that began in the late 1980s. As a consequence, the Arctic has become a global laboratory for what may be a new approach to geopolitics – an approach that is in direct contrast to conventional superpower foreign policy of the 20th century.

Throughout most of the 20th century, foreign policy drew on Mackinder's Heartland theory and the politics of land-based control and political/economic dominance. With the dissolution of the Soviet Union, Mackinder's theory became less relevant opening the way for a new set of values and priorities to emerge in international policy. In particular, Gorbachev's sweeping reforms played a pivotal role in promoting change and freedom and in igniting the global environmental movement. Concerning the Arctic, Gorbachev's Murmansk Initiative in 1987 marks the first time that the notion of international cooperation was extended to the Arctic region. According to Scrivener (1989), the Murmansk Speech was the "first wave in a Soviet diplomatic offensive directed towards the Arctic and the Nordic states (p. 5). Purver (1988) argues that the

Murmansk initiative was "the hallmark of his [Gorbachev's] foreign policy" (Purver, 1988, p. 147). The Murmansk Speech effectively centralized the Arctic as a new stage for international relations, singled out the importance of Arctic indigenous peoples in international affairs (Scrivener, 1989, p. 6), and marked the first time the environment served as the basis for global security (Keskitalo 2004; Young 2009).

The ICC also recognized that the end of the Cold War provided an opportunity for the Inuit to further their influence in international relations. Just prior to the First Arctic Leaders' Summit in 1991, Aqqaluk Lynge, then vice-president of ICC Greenland, noted that "with the fall of the Iron Curtain, the end of the Cold War and the many confidence building-measures taken between the East and the West, We – the inhabitants of the Arctic – necessarily must talk about what We can offer each other to solve Our common problems, and what We can offer the rest of the world" (quoted by Faegteborg 2005, 4). The influence of Gorbachev's Murmansk Speech on diplomacy in the Arctic occurred at approximately the same time as the ICC increased their involvement in international relations. The converging of these two worldviews or intellectual traditions – nation-state and indigenous – essentially marks the beginning of a new approach to foreign policy regarding the Arctic.

Scholars now argue that the Arctic is a unique region where reform can take place. The Arctic is viewed by some as a potential laboratory for international collaboration (Brosnan, Leschine and Miles 2011; Heininen 2011; Heininen & Nicol 2007; Heininen and Southcott 2010; Keskitalo 2004 and 2007; Young, 2009

and 2011) and the site for meaningful engagement between nation-states and Arctic indigenous peoples (Abele and Rodon 2007; Fabbi 2012; Heininen and Nicol 2007; Griffith 2011; Koivurova 2010; Shadian 2010; Plaut 2011; Wilson 2007; Wilson & Smith 2011). In the last few years, each of the Arctic nation-states has released an Arctic or northern dimensions of its foreign policy, a first in foreign policy development. Without exception, the foreign policies of each of the Arctic nation-states (Canada, 2010; Denmark, 2008; Finland, 2010; Iceland 2011; Norway, 2009; Russia, 2008; Sweden, 2011; United States, 2009) prioritizes environmental stewardship, collaboration, and the well being of indigenous peoples. Even Iceland, with no indigenous population of its own, includes support for indigenous rights in its Arctic policy (Iceland, 2010, Principle 6). The ICC declarations on sovereignty and resource development principles are also contributing to this dialogue. The ICC declarations similarly prioritize environmental stewardship, sustainable communities, and argue for a meaningful role for Inuit in foreign affairs. The Arctic nation-states and Inuit are forwarding a new set of priorities in the Arctic that includes protection of cultures and languages as the 'pivotal area' via which a "nation" maintains its strength. As the interest of non-Arctic states in the Arctic intensifies, it will become increasingly important to understand the policy priorities of this emerging world region.

This chapter seeks to understand how the ICC is influencing foreign policy by analyzing the impact of the first ICC *Declaration on Sovereignty* on international relations and domestic Arctic strategies. This chapter will look at the relationship between the historic context that provided the impetus for the drafting of the declaration, address how the declaration has been utilized to influence the proceedings of the Arctic Council as well as domestic Arctic policies, and analyze how the ICC effectively employs an Inuit-centered concept of Arctic territory as well as customary international law to ensure Inuit goals are achieved at the international level. A deeper understanding of how the ICC declaration has influenced the international dialogue concerning the Arctic will provide insight into the growing vision of the Arctic as a unique platform in global relations.

Arctic Oceans Conference, 2008 and Inuit International Policy

The 2008 *Arctic Oceans Conference* would provide the impetus for the drafting of the *Declaration on Sovereignty.* In late May of that year, the inaugural *Arctic Oceans Conference* was held in Ilulissat, Greenland hosted by the Danish Minister for Foreign Affairs, Per Stig Møller, and the Premier of Greenland, Hans Enoksen. This would be the first of now two meetings (2008 & 2010) of the five coastal states bordering on the Arctic Ocean. The meeting was called specifically to address on-going territorial tensions in the region and to assert the legal rights of the Arctic Ocean littoral states – Canada, the United States, Russia, Denmark, and Norway.

Iceland, Sweden, Finland, and the ICC were excluded from the meetings. This exclusion and subsequent release of the *Ilulissat Declaration* were matters of great concern to the ICC and lead to the drafting of the *Declaration on Sovereignty.*

Møller justified the exclusion asserting a "need to send a common political signal to both our own populations and the rest of the world that the five coastal states will address the opportunities and challenges [in the Arctic] in a responsible manner" (McLaughlin 2008, May 27). During the conference Møller further clarified that one of the main goals of the meeting was to affirm a legal regime for the region arguing that the 1982 *United Nations Convention of the Law of the Sea* (UNCLOS) sufficiently provides that regime. However, Møller's argument does not take into account contesting concepts of territory that challenge conventional legal frameworks and sovereignty claims.

Aqqaluk Lynge, then president of ICC, Greenland, provided a keynote address at the conference taking the opportunity to counter Møller's claims. Lynge charged that the "Inuit are being marginalized in this new debate by those who are now in control over our lands and seas" (Lynge 2008, para. 4). Lynge's address questioned the conventional nation-state concept of sovereignty. He challenged the ministers to consider Inuit approaches to sovereignty. Lynge stated:

> Sovereignty is an interesting term. It means different things to different people, and to different countries. What I would like ministers and others here today to understand is that Inuit have their own definition of sovereignty. While we have been loyal servants to the Arctic states in the past, while we have started conversations of peace and co-existence with them despite the hardships we have endured, and while we have in fact promoted their own respective claims of sovereignty from time to time, it does not mean that we are merely pawns in the new debate. (para. 14)

Lynge ended his address warning that the Inuit would voice their concerns "loudly, clearly, and collectively" (para. 16) in response to the Ilulissat meeting.

The *Ilulissat Declaration* was released on May 28th, 2008 asserting that the UNCLOS was a sufficient legal tool for the Arctic Ocean and that the five coastal states have "sovereign rights and jurisdiction" (May 28, 2008, *Ilulissat Declaration,* para. 3) to address the opportunities and challenges that climate change will have on the Arctic region.[15] While the *Ilulissat Declaration* mentions future impacts of resource development *on* Arctic indigenous peoples, the Inuit were not included in the document as the original people of the region or international "nation" with rights in the Arctic. Immediately following the release of the *Ilulissat Declaration,* Duane Smith, then president of ICC Canada noted, "Our Canadian land claims

and self-government processes makes it mandatory for the Federal Government to include us, yet the Declaration that Minister Lunn signed on behalf of Canada ignores the role we should be playing" (ICC, 2008, June 2nd). The exclusion of the Inuit (as well as Iceland, Sweden and Finland) was given considerable attention by the media. Most importantly, the

Ilulissat Declaration would prompt the ICC to draft their first international declaration or Arctic policy statement drawing, according to Zellen (2012), a "new line in the tundra" (para. 8).

Toward an Inuit Declaration on Sovereignty

The first Inuit Leaders' Summit on Arctic Sovereignty was held November 6th and 7th, 2008 in Kuujjuaq, Nunavik. November 7 is International Inuit Day, proclaimed by the ICC at a meeting in Utqiagnik, Alaska in 2006, celebrating the culture, heritage and international voice of the Inuit.

November 7th marks the birthday of the founder of the ICC, Eben Hopson (1922-1980). Thirteen Inuit leaders from Greenland, Alaska, and Canada convened including the premier of the Northwest Territories, the international leadership of the ICC (except for the Inuit of Chukotka), representatives of the Alaskan borough governments, the president of the Inuit Tapiriit Kanatami (the Canadian Inuit association), an Inuit Circumpolar Youth representative, and leaders from the four Inuit regions in Canada (ICC November 6th & 7th, 2008, p. 1). Duane Smith, then president of ICC Canada, opened the summit asserting that while climate change may have spurred international interest in the Arctic, discussions regarding the future of the region would not take place without the consideration of the Inuit – "the rights of Indigenous peoples are all part of the equation" (as quoted in Irwin 2009, 35).

Prior to the Summit, extensive research went into understanding sovereignty from "an Inuit perspective" (ICC 2008, November 6th & 7th, p. 1). On the first day of the Summit, a number of outside experts provide insights on Arctic sovereignty issues.[1] On the second day of the meetings, the Inuit leaders discussed differing notions of sovereignty, in particular, Inuit concepts of sovereignty. Melissa Irwin, then communications director at the Canadian national Inuit association, the Inuit Tapiriit Kanatami, attended the meetings and observed, "The discussions examined concepts of sovereignty as traditionally embraced by nation-states, but also extended

[1] Outside experts included Donald McRae, University of Ottawa; Peter Harder, former Deputy Minister of Foreign Affairs; Douglas Nord, Western Washington University; Rasmus Ole Rasmussen, Roskilde University, Denmark; and, James Anaya, UN Special Rapporteur on the human rights of indigenous peoples (ICC 6-7 November 2008, p. 1).

to the central importance of the right of self-determination enjoyed by the peoples of the world, including indigenous peoples" (Irwin 2009, 32). The delegates also examined the differences between international legal instruments by comparing collective rights and rights to self-determination – protected by the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP) – with sea boundaries and commercial rights outlines in the *United Nations Convention on the Law of the Sea* (Irwin 2009, p. 34).

According to the Summit report, the meeting concluded with a "high level of unity" among the leaders (ICC 2008, November 6th & 7th, 2). Consensus had been achieved concerning a distinct Inuit concept sovereignty, Inuit rights to self determination, and "the right of the Inuit to be meaningfully and directly included in all government discussions of sovereignty over the lands and seas we have lived on for thousands of years" (ICC 2008, November 6th & 7th, 2). The primary outcome of the meeting was a commitment by the delegates to draft a formal declaration on Inuit sovereignty in time to be presented at the Arctic Council Ministers meeting in Trømso, Norway the following April. This goal was achieved.

On April 28th, 2009, the day before the Arctic Council meeting, the ICC launched the *A Circumpolar Inuit Declaration on Arctic Sovereignty* signed by the Inuit from the four regions and the ICC chair. The Declaration was signed by Edward S. Itta ICC Vice-Chair, Alaska; Duane R. Smith ICC Vice-Chair, Canada; Patricia A.L. Cochran, ICC Chair; Tatiana Achirgina ICC Vice-Chair, Chukotka; and, Aqqaluk Lynge ICC Vice-Chair, Greenland. The declaration provided an opportunity to challenge the Arctic Council member states to provide greater inclusion of the Inuit in future decision-making regarding the Arctic, "so that the future development of the Arctic is a truly joint effort, not just between the coastal and non-coastal Arctic states, but between the Arctic states and the Inuit as well" (Zellen 2012).

Declaration on Sovereignty & the Arctic Council

On April 29th, 2009, then ICC president Patricia Cochran presented the *Declaration on Sovereignty* to the delegates at the 6th Ministerial Meeting of the Arctic Council in Tromsø, Norway. This was one of two statements presented by the Permanent Participants to the Ministers. The president of the Sámi Council, Mattias Åhrén, also presented a statement at the meeting asking that the Council ensure that claims to resources in the Arctic are based on "claims to rights to indigenous territories" and that efforts to develop renewable resources.

In her presentation Cochran asserted that the Inuit are not merely stakeholders, as they are most often referred to, but "rights holders." "We are *rights* holders, Mr. Chair. We are land owners, resources owners; we have settlement and treaty rights

and it is our right to be at the table on all matters related to the Arctic" (Cochran, April 29th, 2009, para. 4). The *Declaration on Sovereignty* appears to have been given significant consideration by the Council as direct mention of the role of indigenous peoples is included in the *Tromsø Declaration.*[20] The *Declaration* states that the ministers representing the eight Arctic states, recognize "the rights of indigenous peoples and the interests of all Arctic residents" (Arctic Council, April 29, 2009, para. 5), and emphasizes "the engagement of indigenous peoples as being fundamental to addressing circumpolar challenges and opportunities" (para. 5). By comparison, the *Salekhard Declaration* of 2006 makes only vague commitment to the "increased participation" of indigenous peoples in the "work of the Arctic Council and its subsidiary bodies" (Arctic Council, 26 October 2006, para. 5). The ICC was successful in pressuring the Arctic Council to ensure the inclusion of the Inuit, and other Arctic indigenous peoples, in a more meaningful way in the proceedings of the Council. Byers (April 28 2009) observes that, "What we see with this declaration is an organized attempt [for the Inuit] to insert themselves back into the discussion" (quoted in Weber, para. 13).

Declaration on Sovereignty as Foreign Policy

One could argue that *Declaration on Sovereignty* serves as Inuit foreign policy. Foreign policy, according to Doran (2011) is "the currency of international relations, the medium of exchange in foreign affairs … the practical, day-to-day reality of international political discourse" (p. 605). The content of foreign policy determines relationships with other countries and, more recently, with non-state actors. Foreign policy is developed in response to the need for a nation-state or organization to address an emerging international issue such as the Arctic. As stated earlier, in the last few years each of the Arctic nation-states has released an Arctic or northern dimensions of its foreign policy.

The ICC declaration is part of a parallel development serving to foreground the indigenous worldview at the international level. At one time it was meaningless to speak of a non-nation-state having a foreign policy, however, the scenario evolving in the Arctic is giving significant meaning to this development. To date, the sub-field of foreign policy analysis has not included indigenous policies and declarations as part of the foreign policy dialogue. Yet, this is precisely what is occurring in the Arctic (Fabbi, 2012, p. 168). The ICC declaration lays out the challenges confronting the Inuit and how those challenges will be dealt with in relation to other Arctic entities. The declaration was drafted *specifically* to influence international affairs and to affirm Inuit participation in discussions regarding the future of the region. The declaration lays out the conditions within which the Inuit will engage with the Arctic nation-states. According to Zellen (2010), the ICC declaration, "reflects a formal, if not aggressively forceful, rejection of the modern

state's latest effort to shape the destiny of Arctic without the participation of the Inuit" (5).

The *Declaration on Sovereignty* is an almost 2,500-word document including 30 articles organized into four categories: "Inuit and the Arctic," "The Evolving Nature of Sovereignty in the Arctic," "Inuit, the Arctic and Sovereignty: Looking Forward," and "A Circumpolar Declaration on Sovereignty in the Arctic." The declaration begins by establishing new concepts of territory for the Arctic region. As both Agnew (1987, 1994, 2005) and Fraser (2005, 2009) argue, the nation-state framework has become inadequate in understanding transnational peoples, organizations and issues in an increasingly globalized world. In the ICC declaration the Inuit challenge conventional notions of territory in favor of a transnational understanding of Inuit territory/sovereignty. In the ICC declaration the Arctic is presented as a cohesive region distinguished by climate, geography and people. "Our status, rights and responsibilities as a people among the peoples of the world, and as an indigenous people, are exercised within the *unique* [italics mine] geographic, environmental, cultural and political context of the Arctic" (ICC 2009, Article 1.5).

The ICC directly challenges conventional nation-state borders and calls on a different type of boundary setting to more effectively ensure that the Inuit benefit from future policies:

> Sovereignty is a term that has often been used to refer to the absolute and independent authority of a community or nation both internally and externally.
>
> Sovereignty is a contested concept, however, and does not have a fixed meaning. Old ideas of sovereignty are breaking down as different governance models, such as the European Union, evolve. Sovereignties overlap and are frequently divided within federations in creative ways to recognize the right of peoples." (ICC 2009, Article 2.1)

By using the European Union as a model, the ICC cleverly argues for a new configuration of international space. The declaration directly challenges the unquestioned structure of the nation-state borders in favor of a more fluid and culturally centered space.

To assert the role of the Inuit in international affairs, the declaration argues for Inuit rights as "a people" identified in a number of legal instruments including their rights as citizens of nation-states and as indigenous peoples as recognized in the UNDRIP. "The actions of Arctic peoples and states, the interactions between them, and the conduct of international relations must give primary respect to … the inextricable linkages between issues of sovereignty and sovereign rights in the Arctic and issues of self-determination" (Article 3.2). Given Inuit rights as "a people" the

declaration asserts Inuit must be active partners "in the conduct of international relations in the Arctic" (Article 3.3) and, in providing "Inuit consent, expertise and perspectives … critical to progress on international issues" (Article 3.5).

Koivurova (2010) and Griffith (2011) examine how Arctic indigenous peoples are increasingly utilizing international law to secure their rights. Koivurova notes that since WWII international law has focused increasingly on peoples rather than states and that this may have some bearing and even legal ramifications for how self-determination is understood. Griffith (2011) describes how the *Universal Declaration of Human Rights* (UDHR) (1948), once a set of guiding principles, has become customary law. Today, most nation-states act in accordance with the UDHR and do so out of a sense of legal obligation (Griffith 2011, 139). Increasingly the UNDRIP is being referred to in declarations and by commissions and has every possibility of becoming customary law in the future. According to Griffith, once the UNDRIP has achieved the status of customary law, the Inuit can argue that "not having a role in Arctic governance will threaten their internationally recognized rights as a people" (Griffith 2011, 142) providing the Inuit with "a solid claim to the rights they seek" (*ibid*). Christie (2011) argues that it is *only* via the UNDRIP that the Inuit will be able to successfully challenge nation-state dominance in the Arctic. According to Christie, indigenous rights as "a people," affirmed by the UNDRIP, is challenging the "'absolute' nature of territorial sovereignty" (Christie 2011, 336) and fostering the "growth of international institutions" (*ibid*). By referencing the UNDRIP, the Inuit are ensuring that Inuit concepts of territory and sovereignty are ensured via customary international law.

The ICC declaration was written to address the increased outside interest in the Arctic and on the Inuit Nunaat (homeland) as a result of climate change and the race for Arctic resources. The declaration affirms Inuit unity across the four nations and challenges traditional international relations and decision-making in the Arctic. The declaration directly chastises the five Arctic Ocean coast states for not going "far enough in affirming the rights Inuit have gained through international law, land claims and self-government processes" (Article 4.2). "The conduct of international relations in the Arctic and the resolution of international disputes are not the sole preserve of Arctic states or other states; they are also within the purview of the Arctic's indigenous peoples" (ICC, 2009, Article 4.2). While Ilulissat was meant to solidify coastal state claims, the meeting, according to Dodds (2010), had an unexpected "wider significance" (p. 308) including the response of the ICC. The *Declaration on Sovereignty,* as Inuit foreign policy, challenges the conventional nation-state relationship to the Arctic Ocean and serves as a 'game changer' in the politics of Arctic region.

Declaration on Sovereignty & Canadian Domestic Policy

The ICC *Declaration on Sovereignty* has also influenced domestic Arctic policy in Canada. This influence is evident in two recent Government of Canada reports concerning sovereignty and security in Canada's Arctic waters. *Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard* (2009) and *Canada's Arctic Sovereignty: Report of the Standing Committee on National Defense* (2010) both include Inuit perspectives as found in the *Declaration on Sovereignty* in shaping domestic policy priorities.

From March to September 2009 the Standing Committee on Fisheries and Oceans was charged with collecting evidence concerning Canada's sovereignty over its Arctic waters resulting in the final report, *Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard* (2009). Given the fact that shipping was increasing as a result of rapid summer melt of the Arctic Ocean and Canadian Arctic Archipelago, when the Canadian Northwest Passage became navigable for the first time in recorded history, the government of Canada sought recommendations as to how to ensure security in the northern regions. Charlie Watt, an Inuk in the Senate, served on the Committee. Witnesses included a number of indigenous organizations and businesses. Indigenous organizations and businesses providing evidence to the Committee included the Gwich'in Renewable Resources Board, Gwich'in Tribal Council, Sahtu Renewable Resources Board, Sahtu Secretariat, Inuvialuit Regional Corporation, Inuvialuit Game Council, Municipality of Cambridge Bay, Kivalliq Arctic Foods, Ikaluktutiak Co-op, and Kitikmeot Foods (see "Witness List," Canada 2009, 74-80). Though the ICC was not a witness, the *Declaration on Sovereignty* is referred to directly in the final report and the full participation of the Inuit is recognized throughout as critical to Canadian Arctic security the redefining of conventional concepts of security.

In the forward to the report Committee Chair, Bill Rompkey, P.C., notes "we need to craft our Arctic policy with the Aboriginal peoples of the Arctic as full partners. Too often, good intentions from the rest of Canada have fallen short. As in Nunavut last year, our Committee heard this year in the western Arctic that programs and policies needed to get down to the level of the people – and for that, the people need to help shape the programs and policies in the first place" (Canada, December 2009, vi). Rompkey focuses on community security rather than conventional nation-state concerns. Community security continues to be referred to in the text of the report. The report notes that as a result of increased activity in the Arctic, not only is national security threatened, but the Inuit way of life including the "culture, well-being and traditional way of life" (Canada, December 2009, p. 4) of the people.

In the section "Geopolitical Developments" the report mentions the Ilulissat meetings and the fact that three of the Arctic nation-states were excluded along with

Arctic indigenous peoples. Here the report draws on the *Declaration on Sovereignty* to confirm that the "the rights, roles and responsibilities of Inuit must be fully recognized and accommodated" in discussions on matters linked to Arctic sovereignty, including climate change and resource development (6). The report goes on to assert that:

> Inuit and First Nations have a critical role to play in reinforcing Canada's sovereignty in the Arctic and demonstrating Canada's presence and exercise of jurisdiction in the region. Last year, the testimony of witnesses in Nunavut underlined the need for territorial, community and Inuit involvement in developing the Northern Strategy. This year, in the western Arctic, the evidence heard by the Committee similarly indicates a need to better integrate the views of northerners and Aboriginal people in priority-setting, policy-making, and decision-making. (10)

In the nine recommendations made by the Committee, Recommendation 8 directly concerns the role of Arctic indigenous peoples. The recommendation calls for enhanced communication with northern communities regarding high-risk areas and training for disasters (Canada, December 2009, Recommendation 8, p. iv). In Appendix 1, "Northern Strategy Commitments," a budget is included to realize the nine recommendations. Allocations to support the well being of northerners totals in the hundreds of millions of dollars and includes housing, health care and education (p. 53). Also in Appendix 1, in the category, "Governance," it is recommended that land claims agreements and self-government are negotiated with northerners.

Throughout the report of the Standing Committee on Fisheries and Oceans, *Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard,* Arctic indigenous peoples are given significant visibility. The report calls for the full participation of Arctic indigenous peoples in future discussions and policy development concerning the Arctic region.

At roughly the same time Fisheries and Oceans was conducting its study, the Standing Committee on National Defense was in the process of collecting evidence for a report on Canada's national security in the Arctic. Once again, ICC declaration is referenced in a meaningful way in the report. In April 2009, the Standing Committee on National Defense began an 8-month study on Canada's Arctic sovereignty resulting in *Canada's Arctic Sovereignty: Report of the Standing Committee on National Defense* released in June of 2010. The Committee heard from 41 witnesses representing 30 federal departments, universities, and six Inuit organizations including the ICC. Of the 41 witnesses 10 were senior policy analysts/advisors to the Inuit organizations or Inuit leaders – one quarter of the total witnesses presenting evidence (Canada, June 2010, pp. 21-23).

Just two weeks after the release *Declaration on Sovereignty*, Chester Reimer, Senior Policy Analyst for the ICC Canada, presented the declaration to the Standing Committee on behalf of the organization. He was the second witness to provide evidence to the Committee, following the CEO of a Canadian space company who spoke about the importance of satellite surveillance to monitor conventional security concerns such as illegal fishing, transit, polluting and search and rescue. Reimer begins by challenging conventional methods of dealing with national security. "I'm going to present to you a little bit of a different twist on what some members here believe sovereignty is. I want to talk about more of an international dimension of sovereignty and how the Government of Canada, especially this committee, should be aware of how the Inuit – who don't only live in Canada – can be a good partner, building relationships with Canada and furthering its political goals" (Canada, May 11th, 2009, 2). Reimer goes on to insist that the Inuit are interested in working together with nation-states and must be included in all future discussions regarding military action, economic activity, and scientific research. He makes the point that for the Inuit "sovereignty begins at home" (3) referencing the *Declaration.* "You will notice in the declaration a provision that notes sovereignty begins at home, and that economic and social issues, including language matters, need to be addressed to build a strong, sovereign people" (3). In other words, without strong Arctic communities, there will be no national Arctic sovereignty. Reimer makes the case that the Inuit can ensure Canadian sovereignty at the international level *if* Canada supports sovereignty at the community level.

Mary Simon, then president of ITK, was also interviewed for the report and, like Reimer, quotes directly from the *Declaration on Sovereignty.* Simon notes that "the inextricable linkages between issues of sovereignty and sovereign rights in the Arctic and Inuit self-determination and other rights require states to accept the presence and role of Inuit as partners in the conduct of international relations in the Arctic" (Canada, June 2010, 15). The Report also gives considerable focus to the role of Canada's Arctic peoples in the security and sovereignty of Canada's north. Of the 17 recommendations of the report, four concern the inclusion of the Inuit in the development of future Arctic policies, recognition of the role of indigenous peoples in Canada's Arctic sovereignty to date, and the inclusion of all four Inuit regions in Canada's domestic northern strategy.

In these two reports concerning sovereignty and security policy recommendations to the Canadian government – *Controlling Canada's Arctic Waters: Role of the Canadian Coast Guard* and *Canada's Arctic Sovereignty: Report of the Standing Committee on National Defense* – the ICC declaration plays a significant role in reframing the Arctic as a region that transcends political borders and in affirming the inclusion of the Inuit as critical in future discussions regarding the region. As a result, Arctic indigenous worldviews are integrated into domestic

national policy creating a new intellectual tradition in policy development and implementation.

A Circumpolar Inuit Declaration on Arctic Sovereignty & Post-Ilulissat Meetings

Regardless of the controversy surrounding Ilulissat, the Government of Canada went on to host the 2nd Ministerial Meeting of the Arctic Ocean Coastal States held on March of 2010 in Chelsea, Québec excluding, again, the non-littoral states to the Arctic Ocean and the Inuit. According to the Minister of Foreign Affairs and International Trade, Lawrence Cannon, the meeting was to "provide an opportunity for Arctic Ocean coastal states to prepare for and encourage development that has positive benefits, including economical and environmental. It will reinforce ongoing collaboration in the region, including in the Arctic Council" (Canada, February 3rd, 2010, para. 2). The difference between this meeting and Ilulissat, however, is that the ICC had effectively raised their visibility, in part, through the *Declaration on Sovereignty* so that, at this point, even the delegates themselves are uncomfortable with the exclusion of the ICC.

U.S. Secretary of State Hillary Rodham Clinton embarrassed the Canadian Minister of Foreign Affairs, pointing out that, "Significant international discussions on Arctic issues should include those who have legitimate interests in the region" (Blanchfield, March 29th, 2010, para. 4). That the Secretary of State of the world's most powerful nation would make such a comment is indicative of a major rethinking in conventional international relations. Zellen (2010) calls Clinton's rebuff of Canada, "surreal in its prioritization of a sub-state indigenous minority over an allied nation-state" (9). Indeed, what may not have been understood two years earlier – the salience of nonnation-state actors in the international dialogue regarding the Arctic region – was certainly well understood by the time the Chelsea meetings occurred. Clinton's comments, and the absence of the ICC at the conference, put Cannon on the defensive and called for a media response to the omission.

At this point a third Arctic Oceans Conference has not been organized. Given the effectiveness of Inuit activism and the impact of the *Declaration on Sovereignty*, it is highly unlikely that such a conference would take place without the involvement of the Inuit. Dodds (2010), argues "those Arctic coastal states seeking legal 'certainty' and 'recognition' will have to do so in a world much changed form the Cold War era when extra-territorial actors and indigenous communities were either marginal or marginalised, respectively" (72).

Conclusion

The Arctic provides an opportunity to "destabilize" traditional or mainstream approaches to international relations, to geopolitics, and to foreign policy analysis. The "traditional monopoly claimed by states in the area of foreign affairs" is changing rapidly in the Arctic in no small part due to the effectiveness of Arctic indigenous involvement in international relations. As astutely observed by Heininin and Southcott (2010), that the Arctic is developing as a "platform for international and interregional collaboration" (p. 3) has everything to do with a growing vision of the circumpolar north "first and foremost as a homeland for indigenous peoples" (3). The Inuit have been particularly successful in framing the Arctic as a "coherent political region" (Abele & Rodon 2007, 55) and establishing themselves as "international actors" (ibid). The ICC has even been referred to as a "multi-state nation" (Wilson 2007, 77), and "new party … shouldering its way into international sovereignty discussions" (Weber, April 28th, 2009, para. 1). The Inuit are leaders in promoting new ways of understanding territory in the Arctic that challenges the nation-state model, and in furthering new values that promote the rights of people over that of a nation-state. A Circumpolar Inuit Declaration on Sovereignty in the Arctic reframes Arctic territory as a distinct region that transcends nation-state interests and utilizes international law to affirm the Inuit as "a people" and secure that Inuit are future beneficiaries of Arctic policy.

As the Arctic Council expands in power and authority, including establishing the first legally-binding agreement, the Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic (2011), so too does interest in Council membership. Currently China, Italy, Japan, South Korea, Singapore, and India are applying for Permanent Observer status. How will these applications be viewed in light of the growing integration of Arctic indigenous values on the Council? Leona Aglukka, Canada's upcoming chair for the Arctic Council, notes, "My view is that to be part of the Arctic Council, people come first, the development of the people come first, and how we respect the indigenous people through that application process" (Bell, October 29th, 2012, para. 2). International relations regarding the Arctic are, for the first time in history, including significant indigenous participation including the incorporation of Inuit values and priorities. In maintaining an East-West balance, non-Arctic nation-states will be pressured to adapt to this new melding of conventional international relations with meaningful indigenous involvement in order to participate in decision-shaping involving the Arctic. A new intellectual tradition is emerging in Arctic foreign policy that significantly diverges from the 20th century focus on power relations and nation-state security. This new intellectual tradition in foreign policy is only just being identified and has yet to be understood as an emerging trend in the history of international relations.

References

Abele, F. & T. Rodon. 2007. Inuit diplomacy in the global era: The strengths of multilateral internationalism. *Canadian Foreign Policy/La politique étrangère du Canada 13*(3): 45-67.

Agnew, J. 1987. Place and politics: the geographical mediation of state and society. Boston and London: Allen.

Agnew, J. 1994. The Territorial Trap: The Geographical Assumptions of International Relations Theory. Review of International Political Economy 1(1): 53-80.

Agnew, J. 2005. Sovereignty regimes: Territorial and state authority in contemporary world politics. *Annals of the Association of American Geographers*, 95(2), 2005: 437–461

Arctic Council. 2006, October 26. *Salekhard declaration*. On the occasion of the Fifth Ministerial Meeting of the Arctic Council. Salekhard, Russia. Available online at http://www.arctic-council.org/index.php/en/about/documents/category/31-5thministerial-in-salekhard-russia

Arctic Council. 2009, April 29. *Tromsø declaration*. On the occasion of the Sixth Ministerial Meeting of The Arctic Council. Tromsø, Norway. Available online at http://www.arctic-council.org/index.php/en/about/documents/category/15-6thministerial-meeting-in-tromso-norway

Arctic Council. 2011, May 12. *Agreement on cooperation in aeronautical and maritime search and rescue in the Arctic.* Available online at http://www.arcticcouncil.org/index.php/en/oceans/search-and-rescue/157-sar-agreement

Arctic Council. *Arctic environmental protection strategy.* 1991, June. Available online at http://www.arctic-council.org/index.php/en/about/documents/file/53-aeps

Bell, J. 2012, October 29. Aglukkaq stresses "people-first" approach to Arctic Council EU, China must demonstrate "respect and support of indigenous peoples." *NunatsiaqOnline.* Available online at http://www.nunatsiaqonline.ca/stories/article/65674aglukkaq_stresses_peoplefirst_approach_to_arctic_council/.

Blanchfield, M. 2010, March 19. Clinton rebukes Canada on Arctic meeting. *The Globe and Mail.* Available online at http://www.theglobeandmail.com/news/politics/clintonrebukes-canada-on-arctic-meeting/article1516046/ .

Brosnan, I. G., T. M. Leschine and E. L. Miles. 2011. Cooperation or conflict in a changing Arctic. *Ocean Development and International Law, 42(1),* 173-210. doi: 10.1080/00908320.2011.543032.

Canada. Government of. 2010, October 8. Government of Canada response to the report of the Standing Senate Committee on Fisheries and Oceans: Controlling

Canada's Arctic waters: Role of the Canadian Coast Guard. Available online at http://www.dfompo.gc.ca/reports-rapports/arctic-arctique-2010/resp-arctic-arctique-eng.htm .

---. Department of Foreign Affairs and International Trade (DFAIT) Canada. 2010, February 3. Canada to host ministerial meeting of Arctic Ocean coastal states. [News Releases.] Available online at http://www.international.gc.ca /media/aff/newscommuniques/2010/54.aspx?view=d.

---. Department of Foreign Affairs and International Trade. 2010. Statement on Canada's Arctic foreign policy: Exercising sovereignty and promoting Canada's northern strategy abroad. Available online at http://www.international.gc.ca/polarpolaire/canada_arctic_foreign_policyla_politique_etrangere_du_canada_pour_arctique.aspx?lang=eng&view=d .

---. Standing Committee on National Defense. 2009, May 11. *Evidence.* 40th Parl., 2nd sess., Rept. 018. Retrieved from http://www.parl.gc.ca.

---. Standing Committee on National Defense. 2010, June. *Canada's Arctic* sovereignty: Report of the Standing Committee on National Defense. 40th Parl., 2nd sess. Retrieved from http://www.parl.gc.ca .

---. Standing Committee on Fisheries and Oceans. 2009, December). *Controlling* Canada's Arctic Waters: Role of the Canadian Coast Guard. 40th Parl., 2nd sess. Retrieved from http://www.parl.gc.ca

Christie, G. 2011. Indigeneity and sovereignty in Canada's Far North: The Arctic and Inuit sovereignty. *The South Atlantic Quarterly, (110)*2, 329-346. doi: 10.1215/00382876-1162480.

Cochran, P. 2009, April 29. Introductory remarks. Presented at the Arctic Council, Meeting of Ministers of Foreign Affairs. Trømso, Norway. Available online at http://www.arctic-council.org/index.php/en/about/documents/category/53-finalreports-and-statements?download=216:statement-form-icc

Denmark. 24 August 2011. Ministry of Foreign Affairs, Denmark; Department of

Foreign Affairs, Greenland; Ministry of Foreign Affairs, Faroe Islands. *Denmark, Greenland and the Faroe Islands: Kingdom of Denmark Strategy for the Arctic 2011–2020*. Available online at http://uk.nanoq.gl/

Dodds, K. 2010. Flag planting and finger pointing: The Law of the Sea, the Arctic and the political geographies of the outer continental shelf. *Political Geography 29*, 63-73.

Doran, C. 2011. Foreign policy role, in. *The encyclopedia of political science, (2),* 602-605. G. T. Kuriane ed., Washington, DC: CQ Press. Retrieved from Gale Virtual Reference Library.

Fabbi, N. 2012. Inuit political involvement in the Arctic. In L. Heininen (Ed.), *Arctic yearbook.* Northern Research Forum.

Faegteborg, M. 2005. Reflections on the Arctic Leaders' Summit process. Stubbekøbing, Denmark: Arctic Information. Available online at http://www.saamicouncil.

Finland. Ministry for Foreign Affairs. (August 2010). *Finland's strategy for the Arctic region.* Available online at http://www.arcticportal.org/images/stories/pdf/J0810_Finlands.pdf

Fraser, N. 2005. Reframing justice in a globalizing world. *New Left Review 36*: 69-88.

Fraser, N. 2009. *Scales of Justice: Reimaging Political Space in a Globalizing World*. Columbia University.

Gorbachev, M. 1987, October 1. The Speech in Murmansk at the ceremonial meeting on the occasion of the presentation of the Order of Lenin and the Gold Star Medal to the city of Murmansk, October 1, 1987. Moscow: Novosti Press Agency, pp. 23–31. Available online at www.barentsinfo.fi/docs/Gorbachev_speech.pdf .

Griffith, D. H. 2011. The Inuit Circumpolar Council and Arctic governance: An Indigenous group's fight for self-determination. *Idea of North: Pushing the limits of Arctic sovereignty.* Michael Byers & Shauna Plaut eds. Vancouver, BC: University of British Columbia Press: pp. 87-122.

Heininen, L. 2011, August. Arctic strategies and policies: Inventory and comparative study. The Northern Research Forum and The University of Lapland. Available online at http://www.nrf.is

Heininen, L. and C. Southcott eds. 2010. *Globalization and the circumpolar north.* Fairbanks, AK: University of Alaska Press.

Heininen, L. and H. Nicol. 2007. The importance of northern dimension foreign policies in the geopolitics of the circumpolar north. *Geopolitics,* 12 133-165. doi: 10.1080/14650040601031206

Heubert, R. (1998). New directions in circumpolar cooperation: Canada, the Arctic Environmental Protection Strategy, and the Arctic Council. *Canadian Foreign Policy Journal (5)*2, 37-57. doi: 10.1080/11926422.1998.9673131

Iceland. Ministry for Foreign Affairs 2011, March 28. *A parliamentary resolution on Iceland's Arctic policy.* Available online at http://www.mfa.is/media/nordurlandaskrifstofa/A-Parliamentary-Resolution-on-ICE-Arctic-Policy-approved-by-Althingi.pdf

Ilulissat Declaration. 2008, May 28. Oceans Conference, Nuuk, Greenland. Available online at http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf

Inuit Circumpolar Council. 2008, December. Arctic sovereignty begins with Inuit. *Drum* 1(4); 5-6. Available online at http://www.iccalaska.org/servlet content/newsletter__drum_.html

Inuit Circumpolar Council. 2008, June 2. Canadian Inuit call for direct say on Arctic sovereignty [Press release]. Available online at http://inuitcircumpolar.com/files/uploads/icc-files/PR-2008-06-02-IlulissatResponsePressRelease08Jun2.pdf

Inuit Circumpolar Council. 2009, April 28. *A circumpolar Inuit declaration on sovereignty in the Arctic.* Retrieved from www.itk.ca/circumpolar-inuitdeclaration-arctic-sovereignty

Inuit Circumpolar Council. 2011, May 11. *A circumpolar Inuit declaration on resource development principles in Inuit Nunaat.* Available online at http://www.itk.ca/mediacentre/media-releases/inuit-canada-welcome-circumpolar-inuit-declarationresource-development.

Irwin, M. with J. Merritt & S. Hendrie. (2009, Winter). Inuit on Arctic sovereignty. *Inuktitut: Giving voice to the Inuit experience, 106.* Retrieved from https://www.itk.ca/publication/magazine/inuktitut/back-issues/inuktitut-magazine-2008-106

Jull, P. (1999). Indigenous Internationalism: What should we do next? *Indigenous Affairs,* 1, 12-17.

Keskitalo, C. 2004. Negotiating the Arctic: The construction of an international region. New York, NY: Routledge Press.

Keskitalo, C. (2007). International region-building: Development of the Arctic as an international region. *Cooperation and Conflict: Journal of the Nordic International Studies Association* (42)2: 187-205. doi: 10.1177/0010836707076689

Koivurova, T. (2010). "Sovereign states and self-determining peoples: Carving out a place for transnational indigenous peoples in a world of sovereign states." International Community Law Review, 12, 191-212. doi: 10.1163/187197310X498598.

Lynge, A. (2008, May 28). The new debate of who owns the Arctic is an old one for Inuit. President's Speech, Inuit Circumpolar Council, Greenland. Retrieved from www.iccalaska.org/servlet/download?id=92

Mackinder. H. 1904. "The geographical pivot of history." *The National Geographic Magazine, XV*(8): 331-335.

McLaughlin, K. 2008, May 27. Greenland hosts Arctic sovereignty talks. *Reuters.* Retrieved from http://uk.reuters.com/article/idUKL2725401820080527

Norway. Ministry of Foreign Affairs. (12 March 2009). *New building blocks in the north: The next step in the Government's high north strategy*. Retrieved from http://www.regjeringen.no/upload/UD/Vedlegg/strategien.pdf

Plaut, S. 2011, 'Cooperation is the story': Best practices of transnational Indigenous activism in the North. *The International Journal of Human Rights* 16:193-215.

Purver, R. (1998). *Current Research on Peace and Violence* 11/4: 147-158. Tampere Peace Research Institute, University of Tampere. Available online at http://www.jstor.org/stable/40725103

Russia. 12 May 2009. *Strategy for national security until 2020, No. 537.* (Strategiya natsional'noy bezopasnosti Rossiizkoy Federatsii do 2020 goda). Retrieved from http://rustrans.wikidot.com/russia-s-national-security-strategy-to-2020

Sámi Council. 2009, April 29. Statement from the Sámi Council president. On the occasion of the Sixth Ministerial Meeting of The Arctic Council. Tromsø, Norway. Available online at http://www.arctic-council.org/index.php/en/about/documents/category/15-6th-ministerial-meetingin-tromso-norway

Scrivener, D. 1989. Gorbachev's Murmansk speech: The Soviet Initiative and Western *response.* Oslo, Norway: The Norwegian Atlantic Committee.

Shadian, J. 2010. From states to polities: Reconceptualizing sovereignty through Inuit governance. *European Journal of International Relations, 16*(3), 485-510. doi: 10.1177/1354066109346887

Smith, D. 14 April 2010. Secretary Clinton vs. Minister Cannon. *Embassy.* Available online at http://www.embassymag.ca/news/2010/04/14/secretary-clinton-vs-ministercannon/38800?page_requested=1

Sweden. Ministry for Foreign Affairs. 12 May 2011. *Sweden's strategy for the Arctic region.* Available online at http://www.sweden.gov.se/content/1/c6/18/61/74/9168f21a.pdf

Tennberg, M. 1996. Indigenous peoples' involvement in the Arctic Council. *Northern Notes, International Arctic Social Sciences Association* 4:21-32. Available online at http://arcticcircle.uconn.edu/NatResources/Policy/tennberg.html

United Nations. (1948, December 10). *The universal declaration of human rights.* Retrieved from http://www.un.org/en/documents/udhr/index.shtml

United Nations. (1982, December 10). United Nations convention on the law of the sea. Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations. Available online at http://www.un.org/depts/los/convention_agreements/texts/unclos/UNCLOS-TOC.htm

United Nations. 2007, September 13. United Nations declaration on the rights of indigenous peoples. Available online at http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

United States. National security Presidential directive and homeland security, Presidential directive. 2009, January 9. *Arctic region policy* (NSPD-66 / HSPD-25). Retrieved from http://www.fas.org/irp/offdocs/nspd/nspd-66.htm

Weber, B. 2009, April 28. Arctic dwellers must be included in talks: Inuit group. *Canadian Press.* Available online at http://www.thestar.com/News/Canada/article/625818

Wilson, G. 2007. Inuit diplomacy in the circumpolar north. *Canadian Foreign Policy/La politique étrangère du Canada*, 13(3): 65-82.

Wilson, G. N. and H. A. Smith. 2011. The Inuit Circumpolar Council in an era of global and local change. *International Journal, 66*(4): 909-921.

Young, O. R. 2011. Foreword – Arctic futures: The politics of transformation. In J. Kraska ed., *Arctic security in an age of climate change* (xxi-xxvii). New York, NY: Cambridge University Press.

Young, Oran. 2009. The Arctic in Play: Governance in a Time of Rapid Change. *The International Journal of Marine and Coastal Law 24:* 423-442.

Zellen, B. (2010, Spring). Cold front: Hillary, Ottawa, and the Inuit: A year after the Inuit re-assert their sovereignty, Washington takes their side. *Journal of Military and Strategic Studies*, *12*(3), 5-11.

Zellen, B. (2012, September 5). From statelessness to empowerment: Lessons from the circumpolar Inuit for the Shan restoration. *Shan Herald Agency for News.* Available onine at http://www.shanland.org/index.php?option=com_content&view=article&id=4927:from-statelessness-to-empowerment-lessons-from-the-circumpolar-inuit-for-theshan-restoration&catid=115:opinions&Itemid=308

Section C:

Climate Change, Security and International Cooperation

Chapter 7

The Formation of Extended Security and Climate Change in the Arctic from 1987-2010

Willy Østreng[1]

Abstract

In the post-Cold War years world society has striven to foster new modes of international cooperation and security. This endeavor has taken on a pronounced course in the Arctic and is promoted through four sets of interrelated, but highly incremental processes: a reconceptualization of regional security, i.e. a distinction has been made between military and civil security, civilianization, i.e. the multiplying of cooperative regimes in civil issue-areas, regionalization of decision-making processes, and a mobilization of non-state actors in Arctic policy formation. The overall purpose of this presentation is to address the implications of these processes to Arctic security and environmental cooperation, not least to climate change. The focus will be on the declared goals and political rhetoric of Arctic governments when it comes to the interrelationship between environmental protection, comprehensive security, and international cooperation.

Introduction

The last decades have seen dramatic changes in arctic politics and natural conditions. Due to a set of intermingling political and environmental factors, civil societal organizations are slowly but surely gaining access to areas of the North previously either designated for military purposes only or sealed off from human exploitation by the frosty fences of the sea ice. As a consequence, a brand new set of values, interests and priorities are increasingly making their mark on the political agenda setting of the Arctic, affecting the geopolitical significance of the region in international relations.

The purpose of this article is to substantiate and explain some of the driving forces behind this shift as they have manifested in the last decades. Two kinds of

[1] The viewpoints expressed in this chapter are those of the author and do not necessarily reflect the stand of the Norwegian Scientific Academy for Polar Research.

changes are at work here. One is political, referring to the cessation of the Cold War and changes in the regional security thinking, whereas the other is environmental, stemming from the reductions in sea ice extent and volume. The interaction of these two changes provides new premises in regional security thinking and policymaking.

Political Changes: From Cold to the Post-Cold War Politics

Cold War Politics

During the Cold War three intertwined and partly overlapping political processes defined the preconditions for civil involvement in Arctic affairs: I. *Militarization*, II. *Centralization*, and III. *Marginalization* (see Figure 7-1).

(I) ***Militarization***: None of the major industrial areas in Russia, North America, Europe, or Japan are located more than 3860 nautical miles from the North Pole. Or put differently: Some 80 percent of world industrial production takes place north of 30 degree N. latitude, and some 70 percent of all metropolises lie north of the Tropic of Cancer. Thus, the Arctic Ocean is geographically a military and industrial "Mediterranean Sea" lying in-between the most advanced and productive regions of the world (Stefansson 1922). The first to realize these features of the Arctic was the military-industrial complex.

In a speech to the US Congress in 1935, General Billy Mitchell maintained that "Alaska is the most central place in the world for aircraft. He who holds Alaska holds the world" (Swartztrauber 1965, 10). A scant decade later this was echoed by US Air Force General Henry H. Arnold stating that the North Pole would become a strategic centre point if a third world war should break out (Gould 1958). Some 200 years before them, the Russian scientist Mikhail Lomonosov held that "The Power of Russia shall be increased by Siberia and the Arctic Ocean." These and similar statements – controversial as they were at their time - turned out to be rather prophetic. In actual military practice, they materialized as a response to the political tensions of the Cold War and the military technological inventions made during World War II.

In anticipation of what was coming, the British journalist Harry Smolka in 1937 made three predictions on how Soviet authorities would use the region in national military planning: 1. the city of Murmansk at the Kola Peninsula would be made the primary naval base in Europe, 2. the Northern Sea Route (NSR) would become an artery for naval transfers between the Atlantic and Pacific, and, 3. the ocean column beneath the sea ice would be used as an area for submarine operations. Ten years later, both sides designated the airspace above the polar ice cap as a deployment area for their strategic bombers and intercontinental missiles, and earmarked the water column beneath the sea ice in the Central Arctic Basin for

future submarine operations. The use of the Arctic for strategic deterrence resulted in an extensive construction of air-attack warning and surveillance radar stations, airfields and missile bases on land along the whole periphery of the circumpolar area. This deployment pattern gradually made the Arctic transform from a military vacuum prior to World War II, to a military flank in the 1950-70 period and to a military front in the 1980s (see Østreng et al 1999).

The gradual inclusion of the North into Cold War nuclear planning made most governments conceive of arctic security solely in military terms. National security became synonymous with military security. This had its bearing on the way in which political decisions were made in all the Arctic states (Østreng 1999).

(II) ***Centralization***: To retain authority and to avoid civil activities interfering – directly and/or indirectly - with military-strategic interests, central governments assumed control of the national decision-making process, and made arctic affairs the prerogative of the executive branch. Thus, interests of high politics, i.e those concerning the very military survival of the state, ruled the day and defined the content of policy, managerial procedures and legislation in all littoral states to the Arctic Ocean. This prioritisation resulted in the **(III)** ***Marginalization*** of civil issue areas, which were subordinated to military needs and priorities were controlled to keep a low profile in regional affairs. As a rule of thumb, security considerations gained the upper hand in setting national priorities for the North, and civil issue areas like resource exploitation, transport, research, rescue operations, native communities, environmental protection etc. were integrated into the realm of military and political tension. Whenever the military establishment perceived of a conflict between the two types of interests, the civil sector was obliged to yield. For the Arctic this created from the outset of the East-West conflict a military defined concept of security in which civil issue areas were subordinated to strategic needs.

Thus, the combined processes of militarization, centralization, and marginalization deprived the Arctic of a cooperative atmosphere and sidetracked the interests of civil society in policy formulation. (See Figure 7-1). The military-industrial complex on both sides of the iron and ice fence ruled and directed regional affairs.

Post Cold War Politics: the First Phase

Soviet regional security thinking

The first public attempt to break out of the Cold War security thinking came from the party most rigorously insisting on it in the past. On 1 October 1987 Secretary General, Mikhail Gorbachev gave a speech in Murmansk in which he signaled a willingness to initiate international cooperation in five civil issue areas: energy planning, environmental protection, scientific cooperation, and

transportation (Scrivener 1989). In identifying these areas, Gorbachev also introduced a distinction between military and civil security. Both were regarded as vital for safeguarding national security, but the civil component was to be given priority from then on (Parrott 1988).

Actually, the new approach held that security lay in the political rather than military sphere and that national security was a comprehensive and complex matter based on two principles: first, national security is an integral part of the security of others, implying that no country can be more secure than others and that one county's insecurity equals the insecurity of the rest. Thus, military imbalances and asymmetries should in the long term be eliminated. Second, common problems of a trans-boundary nature – ecological, economic or whatever – can only be resolved through international cooperation. The increased complexity and interdependence between states had, according to the new thinking, created a need to develop a comprehensive system of international security based on a mechanism capable of discussing common problems in a responsible way and at a representative level. The need was to extend the concept to comprise, in addition to military matters, economy, ecology and human rights. Thus, international cooperation in civil issue areas was defined as a measure to bolster national security (Granovsky 1989). The purpose was to create extended security through international cooperation by decoupling military and civil issue areas. Coexistence between rather than exclusion of interests was the prescription suggested to transform the region into a cooperative place for civil activities to take place on their own preconditions and on an equal footing with military activities Østreng 1992).

Prime Minister Ryzhkov clarified the implications of this distinction: "We do not make the implementation of the military and political aspects of the Murmansk initiative an absolute condition for the development of cooperation between the Arctic rim states in the economic, scientific, ecological, humanitarian and other areas" (Rodionov 1989, 212). However, the close interconnectedness between the two components of national security made Ryzhkov underscore that "everybody will understand that even a sturdy house built as the result of such cooperation could easily be destroyed by the destructive power concentrated in the Arctic areas" (Ibid.). In other words, the civil and military sectors were regarded as being both separated (Murmansk program) and closely interconnected (Ryzhkovs statement) in the realm of national security and should as such be handled in an interactive, but sector-specific manner. The relationship between the two sectors should, however, be based on the premise that no sector was in a position automatically to violate the others' independent abilities to fulfil their unique obligations to contribute to the extended national security opted for in the Murmansk program.

The separation of Arctic security into interrelated parts was an acknowledgement of the complexity of national security, the military component

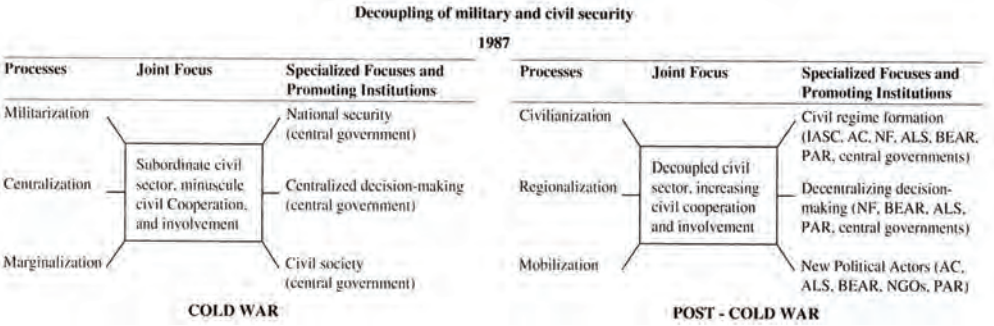
being only one. Whereas the Cold War concept was one of military partiality, regarding civil activities as a potential obstacle, or even threat to military security, the new thinking was one of comprehensiveness, regarding civil cooperation in many fields as one of two sets of measures to prepare nations to meet all kinds of threat to national security, military as well as civil. The new security concept was one of comprehensive complexity, extended to comprise and counteract all possible threats to the well being of states, civil as well as military. In achieving this, some civil issue areas should be the object of international cooperation (Østreng 1999, 21-38). The Soviet Union was on a brand new track in regional security thinking. The Murmansk speech and this change have been labelled the first iconic moment in modern Arctic history – a state change in which the complex dynamic political system of the High North underwent a sharp irreversible non-linear shift (Young, 2009). How did this shift reason with western conceptions?

Western regional security conceptions

Throughout the last twenty years of the Cold War, the western rim states had been somewhat more open to functional multilateral cooperation in non-military issue areas than the Soviet Union. This relative and conditioned openness was nourished by the heritage from U.S. Vice-President, Henry A. Wallace, who, during World War II, proposed that his country should lead the way in establishing an Arctic Treaty for, inter alia, scientific exploration and cooperation among the Arctic States (Pollack and Anderson 1973). The drafting and implementation of such a treaty never materialized, partly due to the hegemonic features of the Cold War, and partly due to lack of pressing contemporary needs for international cooperation in most civil fields. In the course of the 1970s and 1980s there are examples (AIDJEX, Polar Bear Agreement etc.) showing that western states cautiously took initiatives to open up for pan-Arctic scientific cooperation, a good ten years before the Soviet government did. The western approach proceeded along the lines later followed in the Murmansk program: Non-military issue areas appropriate for international cooperation were identified and then peeled away from those interests defined as pertaining to military security. The process was cautious and gradual, but in terms of security conceptions, the two sides stood on a fairly equal footing around 1987 when Gorbachev made his historic speech in Murmansk (Østreng 1999).

This pan-Arctic re-conceptualization of regional security unleashed three interrelated and partly overlapping political processes, counteracting the effects of the three Cold War processes: A. *Civilianization*, B. *Regionalization*, C. *Mobilization* (see Figure 7-1). These three processes concur and comply in addressing the same topic: international civil cooperation, but differ when it comes to focus. Regionalization highlights the changing pattern of decision-making between central and local governments, civilianization is mainly preoccupied with the processes of

Figure 7-1. Civil Societies in Arctic Politics: From the Cold War to the Post-Cold War



civil regime formations, whilst mobilization addresses the participatory dimension of politics.

The process of (A) *civilianization* is preoccupied with fostering international cooperation in civil issue areas through formalized arrangements. It started out with the formation of *the International Arctic Science Committee* (IASC) in 1990. One year later, three new establishments saw the light of day: the *Northern Forum* (NF), the *Aboriginal Leaders Summit* (ALS) and the *Rovaniemi process*. Then followed the founding of the *Barents Euro-Arctic Region* (BEAR) and the *Parliamentarians of the Arctic* in 1993. Last, but not least, the *Arctic Council* (AC) was formed in 1996. These spontaneous and highly uncoordinated establishments have opened up a whole new era of cooperation slowly but gradually doing away with the traditional East/West divide in the region. They manifest that civil issue areas have been assigned an independent position and role in relation to military priorities and that the endeavors to foster civil security has become a pan-Arctic concern. For the first time in Arctic history, an all-embracing cooperative structure has been established to deal with the challenges of low politics, i.e those of civil society. Environmental protection and preservation , scientific exploration and indigenous peoples have been singled out by all these regimes as the most suitable issue areas for promoting multilateral cooperation.

This development triggered the process of *regionalization*, which invites the participation of lower levels of government in decision-making for the region. This first came to fruition with the founding of the Northern Forum, whose prime objective is to further the dialogue and promote cooperation between regional governments in the circumpolar area, and to make the regional voice stronger and more influential vis a vis central governments in policy formulation. Another example is the Barents Euro-Arctic Region, that is based on the premise that the prime responsibility of furthering trans-regional cooperation across national borders

rests with local governments and the civil societal organizations in the sub-region. (Castberg, Stokke and Østreng 1994).

This process unleashed the process of *mobilization*, which addresses the broader participatory dimension of politics. All the cooperative regimes established in the 1990s explicitly invite, for instance, native participation. The Arctic Council has designated native organizations as Permanent Members, whereas extraterritorial States (i.e. states with an Arctic interest but without territory in the region) have been assigned the status of Observers, ranking below the participatory status of indigenous organizations. In the context of the BEAR, no less than six different types of actors have been invited for participation: external polities (EU, non-subregional states), regional territorial states (Norway, Sweden, Finland and Russia), subnational regions (the eleven cooperative counties/oblasts), structural actors (Secretariat, the Regional and Barents Council), transregional actors (Samis) and societal actors (companies, universities, cultural organizations etc.). This multi-level and multi-player setting have given rise to a most pluralistic decision-making structure labelled the 'polity-puzzle' both of the BEAR and the overall security agenda of the post Cold War era (Eriksson 1994). Here, societal actors like companies, universities, cultural organizations etc. have been politically defined by central governments as the prime movers of regional cooperation and development. Since security policy constitutionally is the responsibility of central government, what the governments have invited their counties to do is, through their civil societies, to contribute to the creation of a new civil security order in their own neighborhood together with governments. In this perspective, the BEAR is a government-governed partnership between counties and governments across borders. As has been noted, "..the net effect on security (of this cooperative arrangement) may be positive,…, to the extent that regional power can allay local anxieties and neutralize violent separatist groups. In so doing, regions relieve pressure on national governments. It is by chance that regional power has grown with the willing assent of state – although it has grown in some places because national governments could not deter it by any acceptable means. (Newhouse 1977).

In this context, the concept of regionalization is a key notion, underscoring that political decisions are to be taken at the lowest possible level. According to one observer this should imply a new security role for provinces and interregional institutions in that the Contracting parties of the BEAR have agreed "to secure a peaceful and stable development in the Region."(Eriksson 1995). When directly asked, representatives of local governments in North Norway have, for example, emphasized that they are not simply acting in the interests of their provinces and counties but also in the interest of their national societies (Ibid., 271). The point illustrated here is that the polities either overlap or are included in each other as is the case with central and provincial governments (Eriksson 1994). In this way

regional politics have become part of the state's foreign and security policy – a version that has been termed "decentralized foreign and security policy" (Stoltenberg,1992). The polity puzzle confronting BEAR governments is that uncertainty exists about the security function of various polities (Eriksson, 1994). A different perspective is that trans-national politicization as the one practiced within Bear stimulates mobilization from below that will not necessarily be given the consent of central government because the role of the states as a non-disputed supreme security subject is being challenged" (Eriksson 1995). Either or, the complexity of the Barents scheme makes the BEAR a composite laboratory-test of the operationalization of the extended concept of security – thematically, geographically and otherwise (Koivumaa, this volume).

It is noteworthy that the Barents cooperation has not designated any of its many working committees for security deliberations. Civil security is thus a topic not to be addressed directly in open discussions within the cooperative apparatus but rather a public goal to be achieved indirectly mostly through the civil activities conducted by "non-security actors." Actually, here the BEAR complies with the trend of Arctic regionalization and civilianization in general: Military matters, which are an integral part of any reasonable definition of extended security (Østreng1999), have been excluded from all the regimes and agendas. The only regime that explicitly address the topic of security is the Arctic Council, stating in its founding document that it shall not deal with "matters related to military security" (Arctic Council 1996, footnotes 1 and 5).

As has been observed, "Apart from the vague objective of promoting collective environmental security in the region, such features will not feature on the Arctic Council's initial agenda" (Scrivener 1996). However, if not officially declared, the effects on Arctic security stemming from the results of the other cooperative arrangements do not, in principle, differ from that of BEAR. Provided those regimes produce what is declared, the overall cooperative process to civilianize and regionalize Arctic international relations, will by implication, affect the process to implement the new concept of extended regional security. Consequently, all regimes purport contributing indirectly to civilianize regional security. In the short and medium term perspective, the issue area most salient as an object to promote civil security in the Arctic is environmental preservation – the politically least controversial common denominator of all the regimes.

Combined the processes of civilianization, regionalization and mobilization make room for political authority and influence in different forms and on other levels than the state. None-state polities are increasingly claiming to be points of identification, as well as claiming greater political autonomy (Eriksson 1994). Thus, a new era of low politics and civil involvement in regional affairs has been put in the post-Cold War melting pot of Arctic affairs. Low politics have become part of high

politics. The incentives to utilize this fresh political foundation for civil purposes is being strengthened by global climate warming and changes in the sea ice cover of the Arctic Ocean.

Environmental Changes: Sea ice reductions

Over the last 30 years, the average winter temperature in the Arctic has increased by six degrees Celsius. This warming has resulted in a decrease in snow cover and glacier mass balances, thawing of the permafrost, and a notable reduction in sea ice extent, thickness, and strength. Since 1978, the overall reduction of sea ice extent has been more than 10% (the International Arctic Science Committee 1999, 10). In the period 1976- 1990 the extent of sea ice was reduced by 1 million sq.km., i.e an area bigger than Norway, Denmark and Sweden combined. Observed sea ice reductions in later years indicates an annual loss of 45 000 sq km. of sea ice (Arctic Marine Shipping Assessment (AMSA) 2009, 12). The extent of ice in the Arctic Ocean has an annual cycle of freeze and melting. March represents the height of winter and freeze with a maximum ice growth covering about 16 million square kilometer of the surface of the Arctic Basin. New extreme minima of summer ice extent have been established repeatedly ever since 1980. As an example, the September ice extent in the Chukchi Sea was in 1998 25% below the prior minimum value over a 45year period (Weller 2000, 43). In mid-September 2007, the Arctic Ocean reached its absolute sea ice minimum so far covering only 4.1 million square kilometers, i.e. a reduction of 74 percent as compared to the average sea ice coverage of March. One year later – in September 2008 - the extent of sea ice was about 1 million square km bigger than at the same time the year before, covering 5,2 million square kilometer (Doyle 2008). In March 2008 the ice extent rebounded rapidly to a winter maximum that was actually higher than in the previous four years. On these grounds, ice-experts expect strong natural variability events in the future, causing both decreases and increases of the arctic sea-ice cover on seasonal and decadal time scales (Johannessen 2008, 52).

This annual and inter-annual variability notwithstanding, expert opinion is that the thawing is long-term and that the ice-edge will steadily migrate northward along with a further thinning and weakening of sea ice. Over the last 30 years, sea ice thickness in the Central Arctic Ocean - a sensitive indicator of climate change - has decreased by 42 %, a decrease of 1.3 meters – from 3.1 to 1.8 meters (Weller 2000, 40) As a consequence, the influx of multiyear ice from the Central Arctic Ocean to the coastal areas has decreased by 14 percent from 1978 to 1998. This decrease greatly benefits economic activities in coastal waters.

On the basis of these and other scientific observations, model experiments suggest a further decrease in sea ice thickness of some 30 %, and an ice volume decrease between 15 and 40% by 2050 (Naval Ice Center 2001, 3) If this trend continues, one postulate is that summertime disappearance of the ice cap is possible

in the course of this century and that significant areas of the Arctic Ocean may become permanently free of sea ice in summer (Ibid.). One of the models simulates an ice-free Arctic Ocean in summer by 2050. This scenario implies that the physical occurrence of multi-year ice can possibly disappear from these waters in the future improving further the conditions of economic activities. This is not to say that the Arctic Ocean will become an ice-free ocean also in winters. As concluded in the Arctic Shipping Assessment Study (AMSA): "Even after the first ice-free summer is recorded, there will almost certainly be subsequent years when all of the ice does not melt in summer but survives to become "old" ice the following year. It is … generally agreed that the Arctic waters will continue to freeze over in winter" (AMSA 2009, 178). Russian scientists go one step further maintaining that the likelihood of an ice-free Arctic Ocean in the future is small even if the air temperature continues to increase. Their doubt is founded on the argument that the sustainability of the composition and functioning of the structure of the upper layers of the Arctic Ocean will control and reduce the melting process (Ugryumov and Korovin 2005, 110-111). Thus, different sources assume sea ice to be a lasting characteristic of the Arctic Ocean.

Since science on complex non-linear systems, like the global "weather machine," cannot be modelled exactly to make sure predictions, our knowledge on the relationship between global warming and climate change will remain somewhat simplified and limited, leaving room for scientific uncertainties, doubts and even controversies. The questions still causing some debate is how the recorded changes should be interpreted and what causes them? Some experts claim them to be nothing but cyclical natural variations of a limited duration, others think of them as evidence of long-lasting climate change, whereas a majority seem to agree that they are a combination of both.

Prominent climatologists estimate the probability that the recorded trends result from natural climatic variability to be less than 0.1 percent (Vinnikov et al. 1999, 1934-1937). The UN International Panel of Climate Change (IPCC) follow suit, claiming with increasing certainty that the prime driver of global warming is anthropogenic, mainly caused by greenhouse emissions. This stand is substantiated by independent model experiments suggesting that there is a 90 percent match between rising greenhouse gas emissions, mainly from use of fossil fuels in recent decades, and observations of a retreat of sea ice. Thus, only 10 percent are due to cyclical variations (Johannessen 2008, 51-56). Furthermore, observations over the last 20 years strongly suggest that more ice is disappearing from the Arctic Ocean than what the IPCC- models tell (Ibid.) In this perspective, IPCC estimates are conservative. Although, scientific uncertainties still prevail the 'majority vote' of climatologists and sea ice experts seem to be that global warming at present is driven by anthropogenic emissions of climate gases and supported by natural variations.

On this 'vote', most governments form their climate and regional policies. This chapter is based on the same vote.

The projected trends in sea ice changes raises a whole new set of social, economic, environmental, political, cultural, human rights and strategic questions, presenting governments and civil societal organizations with complex challenges as well as fresh opportunities . The first version of extended post-Cold War security is about to be put to the test by a dwindling sea ice cover.

Post-Cold War Politics: The Second Unfinished Phase

At the time of the Murmansk initiative, governments did not pay much attention to the political, economic and societal implications of a changing sea ice regime, or for that matter global climate change. Their preoccupation was with changing politics - the dismantling of the Cold War and the reconstruction of a new international political order. Global climate change became headline politics only in the later part of the 1990's, and rose to prominence in the 2000s. This fresh input into the political process has been labelled the second 'iconic moment of state change' in the Arctic in the post-Cold War period (Young 2009). It came to realization in two stages – in 1998 with the release of the AMAP Assessment Report. Arctic Pollution Issues, and in 2005 with the issuing of the Arctic Climate Impact Assessment (see Figure 1).

In recent years, the Arctic Ocean seems to attract interests from an increasing number of extraterritorial states, European as well as Asian. As of the present, the Asian newcomers seems to include important countries like China, Japan, South Korea and India. Thus, we may add a fourth process, *globalization*, to the three post-Cold War processes going on in the Arctic as of now. The fourth process is still fairly weak in expression, but is likely to grow in significance and impact on regional matters in the years ahead.

Four key political consequences of regional significance stem from these releases: a rise of new economic interests, in particular energy and shipping, a growing prominence of extraterritorial actors, an emergence of jurisdictional issues (Ibid.), and a change in military operational conditions (see Heininen, this volume).

To cope with these consequences, the 'politics of Murmansk' are now in a process of redefinition in most Arctic capitals through a juggling of positions between multiple actors – external and internal, civil and governmental - representing different sectors and issue areas. How this re-evaluation process will play out in detail and what adjustments the Arctic Eighth will undertake to secure their individual and collective interests is much too early to tell. What can be said with certainty is that the economic and military sectors are facing very different challenges in adjusting their societal functions and interests to a changing sea ice regime.

The Role of Sea Ice in Post-Cold War Policy Formulation

The Murmansk initiative opened the Arctic for civil activities on an equal footing with the military. This could be done because the two activities were geographically separated by sea ice in the region. Strategic deterrence could be secured by strategic submarines operating in the deep water sections of the Central Arctic Basin, whereas the fringes – the seasonally ice free areas – of the Arctic Ocean were designated civil activities. For the oil industry it was important to shield its installations from contact with the unpredictable forces of moving sea ice, whereas strategic submarines used the ice cover as a protective shield to enhance their survivability (see below).(Østreng 1987). The interference of the two interests in each other's activity areas only occurred in the Barents Sea – the thoroughfare of the Northern Fleet based at the Kola Peninsula (Bergesen, Moe and Østreng 1987). Obviously, this amount of interference was acceptable, if not desirable to the Soviet leadership. On the premise that Soviet scientists told their political leaders that the sea ice cover was stable and permanent (see above), Gorbachev could change Soviet policy and security thinking in the region on the basis of political needs and premises only. It lasted until the turn of the century before the state of sea ice became a prime driver of political change.

The rise of new economic interests in Arctic energy As shown above, the annual reductions in sea ice extent in the Arctic Ocean amounts to 45 000 sq. km., i.e. more than the size of Denmark. This melt is accelerating, opening up sizeable chunks of previously ice closed continental shelf areas for exploration and exploitation. Expectations are that the oil industry will follow the ice edge northward in its search of oil and gas until it reaches the southernmost fringes of the Central Arctic Basin.

According to the US Geological Surveys' (USGS) most recent estimates, the Arctic may hold up to 24 percent of the world's undiscovered hydrocarbons, i.e. 51 billion tons of oil equivalents (o.e.) (Focus North 2007). Of these resources, the shelf is supposed to contain a reasonable share. The interest in exploiting these resources is fuelled by two extraterritorial and geopolitical reasons.

First, the global rate of oil finds has dropped drastically since the late 1960s, indicating that world energy production may be on a steep downhill track in the years ahead. At the same time the demand for oil is expected to increase by some 60 percent over the next 30 years. Here, find rates, supply and demand are on a course of fatal collision. New energy forms, sources and provinces are in high demand. The assumed role of petroleum in this rather bleak futuristic scenario is that oil and gas will remain the dominant form of energy supply for at least 40 more years (BP Statistical Review of World Energy 2005).

Second, to take energy resources from the Arctic complies with the policy of most oil and gas importing countries to reduce their vulnerability of being subjected to energy blackmails from governments in politically unstable and volatile areas. The attraction for Arctic oil and gas is fed by the war against terrorism, piracy in southern waters and the enduring political dramas of the Middle East and Central Asia providing the bulk of fossil energy to import-dependent countries in the Western world. The six Israeli/Arab wars, the Gulf war, the Afghan War, and the 11 year long war between Iraq and Iran, all introduced severe uncertainties in the supply of oil to energy dependent countries, and made energy prices soar to unprecedented levels seriously hurting the world economy

Regional Military Security

According to US military sources an ice-free Arctic Ocean is likely to increase the scope of naval operations in the region. It is projected that new capabilities will be required in many aspects of air, space, surface and subsurface operations and support. (Naval Ice Centre 2001, 3). This, in particular, will impact on the military dispositions of Russia - the main strategic user of these waters. The most drastic changes will apply to the operational conditions of strategic submarines (SSBNs) operating beneath the sea ice canopy in the Central Arctic Basin. The sea ice has ever since the late 1970s, early 1980s acted as a "protective shield" preventing the effective application of anti-submarine warfare (ASW) against SSBNs seeking protection from detection under the ice cover. It prevents the effective use of most ASW measures from the ocean surface (i.e. deepwater bombs) and reduces the effectiveness of listening devices on the sea bed. Even hunter-killer submarines are restricted by sea ice conditions in their efforts to detect, track and destroy SSBNs in these waters (Østreng 1987). The US Office of Naval Research puts it succinctly: "The geographic proximity of the Arctic Ocean to North America, Europe, and Asia makes (the Arctic Ocean) a particularly attractive area for the stationing of strategic (ballistic missile) submarine. …….(T)he ice canopy makes deployment of surveillance systems costly and difficult. Stationary submarines can take refuge near the ice, where they are virtually undetectable and invulnerable to attack: or in the marginal ice zones, where environmental noise masks their presence" (Naval Ice Center 2001, 14). The Central Arctic Basin has to a large extent served Soviet/ Russian SSBNs as an operational sanctuary for decades, contributing to the preservation of the strategic balance. The gradual disappearing of the sea ice will, according to the US Office of Naval Research, "eliminate the haven now provided to stationary submarines by ice keels. Active sonar detection of submarines, both by ASW sonars and acoustic torpedoes, will become feasible … (and) the melting of sea ice will turn (the Arctic Ocean) into a conventional open-ocean ASW environment, with none of the advantages it now affords to an adversary strategic submarine" (Ibid, 15). The usefulness of the sea ice for enhancing the survivability of Russian SSBNs is declining, requiring alterations in existing military operational concepts.

What is more: the Arctic Ocean is the only ocean providing the Russian fleet with direct access to the high seas without passing through straits or confined sea areas controlled by other states. In times of hostilities these waters can be blocked for transit, hurting Russia's military operational capabilities. Thus, the dwindling of the sea ice cover in the Central Arctic Basin relates to the geopolitical problem Russia faces as a sea power in southern waters. What counter measures Russia will apply to mitigate these operational handicaps is not known at present, but they may reshuffle the balance between the civil and military components in the concept of extended security applied to the region (see Figure 7-1). Recently, President Dimitri I. Medvedev announced a military build-up of Russia's strategic forces to counteract what he perceives to be a renewed containment policy on the part of NATO and the USA. If implemented, such a move will have regional consequences.

Summing up

Changing politics and environments have altered the operational preconditions of human involvement in the utilization of Arctic potentials. Strategic submarines may be in the process of loosing the operational advantages stemming from a sustained sea ice cover, whereas the civil sector benefits from its gradual disappearance. Civil activities are in the long term moving northward along with the ice edge, closing in on the operational space of strategic submarines, whereas thin hulled surface warships may be redeployed to use the ice free coastal waters of the circumpolar Arctic, interfering with the prime operational space of civil economic activities. Geographically, the sectors are no longer distinctively separated by natural features. This increases the likelihood of contacts between spheres of interests, enhancing the possibility of conflicts, not only between sectors but also between interests in civil societies and across national borders. The processes of civilianization, regionalization and mobilization have been supplemented with the process of globalization, expanding the number of voices claiming a legitimate interest and say in the conduct of regional affairs. Thus, the political need is for cooperation within and between sectors, nations and governments extending beyond the region itself. The Arctic is gradually being assigned a more complex geopolitical role in global affairs. The overall challenge of this development is to find ways of cohabitation between interests approaching each other's operational spaces.

The combined effects of recent policy additions and changes is that the balance between the components of the extended security concept as defined in Murmansk may be altered. A likely outcome is that central governments will try to keep control by tightening their grip on regional politics with jurisdictional means at the expense of regionalization (see figure 7-1).

References

---. 1992. Political-Military Relations among the Ice-States: The Conceptual Basis of State Behaviour in *Arctic Alternatives: Civility or Militarism in the Circumpolar North*, Franklyn Griffiths ed., Science for Peace/Samuel Stevens.

Arctic Marine Shipping Assessment (AMSA). 2009. *Report*, Draft 1, 14 November 2008, Arctic Council, PAME-program, p. 10

Bergesen, Helge Ole, Arild Moe and Willy Østreng. 1987. *Soviet Oil and Security Interests in the Barents Sea*. London: Frances Pinter.

BP Statistical Review of World Energy, 2005. *Putting Energy in the Spotlight: BP Statistical Review of World Energy 2005: Natural Gas and Putting Energy in the Spotlight: BP Statistical Review of World Energy 2005: Oil.*

Castberg, Rune, Olav Schram Stokke and Willy Østreng. 1994. The Dynamics of the Barents Region in The Barents Region. Cooperation in *Arctic Europe*, Olav Schram Stokke and Ola Tunander eds., London, Thousands Oaks, 1994: 71-84

Declaration on the Establishment of the Arctic Council. September 1996, *Arctic Bulletin*, no. 4, 1996, footnotes 1 and 5.

Doyle, Alister. 2008. Arctic ice bigger in 2007, but thawing long-term, 30 July 2008: blogs.reuters.com/environment.

Eriksson, Johan. 1995. Security in the Barents Region. Interpretations and Implications of the Norwegian Barents Initiative, in *Cooperation and Conflict*, 30(3).

Eriksson, Johan.1994. Euro-Arctic Security: The Polity-Puzzle in G. Lassinantti (ed): *Common Security in Northern Europe after the Cold War: The Baltic Sea region and the Barents Sea Region*, Stockholm: Olof Palme International Centre.

Gould, L.M. 1958. *The Polar Regions in their Relations to Human Affairs*,New York: American Geographical Society.

Granovsky, Andrey E. 1989. Soviet Approaches to Security in the Arctic, in *The Arctic. Choices for Peace and Security*, W.A .Hurlburt ed. Seattle: Gordon Soules Book Publishers: 215-222

International Arctic Science Committee. 1999. *Impacts of Global Climatic Change in the Arctic Region*, Report from a Workshop on the Impacts of Impacts of Global Climatic Change in the Arctic Region, Report from a Workshop on the Impacts of Global Change, 25-26 April, 1999, Tromso Norway: International Arctic Science Committee.

Johannessen, Ola M. 2008. Arctic Sea Ice Mirrors Increasing CO2 on Decadal Time Scale. *Atmospheric and Oceanic Science Letters* 1(1).

Naval Ice Center. 2001. *Naval Operations in an Ice-free Arctic*, Final Report of a Symposium, 17-18 April 2001, Office of Naval Research, Naval Ice Center, Oceanographer of the Navy and the Arctic Research Commission, Whitney, Bradley & Brown, Washington.

Newhouse, John. 1977. Europe's Rising Regionalism. *Foreign Affairs,* 76(1).

Ocean Futures. 2007. *Focus North. Oil and Gas*, The Norwegian Atlantic Committee. Oslo: Ocean Futures.

Østreng, Willy,Anatoly L. Kolodkin, Douglas Brubaker and Johnny-Leo L. Jernsletten. 1999. Military, Political, Legal, and Human Affairs" in Willy Østreng (ed.), *The Natural and Societal Challenges of the Northern Sea Route. A Reference Work*, Dordrecht: Kluwer Academic Publishers: 281-303

Østreng, Willy. 1987. *The Soviet Union in Arctic Waters. Security Implications for the Northern Flank of NATO*, Occasional Paper, no. 36, The Law of the Sea Institute, University of Hawaii, Honolulu.

Østreng, Willy. 1999. National Security and the Evolving Issues of Arctic Environment and Cooperation in *National Security and International Environmental Cooperation in the Arctic – the Case of the Northern Sea Route* Willy Østreng ed., Dordrecht, London, Boston : Kluwer Academic Publishers: 21-39.

Østreng, Willy. 1999. The NSR in the Context of Arctic Environmental Cooperation and National Security: Some Concluding Remarks, in Willy Østreng (ed.)*National Security and International Environmental Cooperation in the Arctic – The Case of the Northern Sea Route*. Dordrecht: Kluwer Academic Publishers: 239-266

Parrott, Bruce.1988. Soviet National Security under Gorbachev, *Problems of Communism* 37(10).

Pollack, Herman and Peter Anderson.1973. United States Policy for the Arctic, *Arctic Bulletin* no. 2, 1973.

Rodionov, Alexei A. Soviet Approaches to Security and Peaceful Cooperation in the Arctic: An Overview, in *The Arctic. Choices for Peace and Security*, W.A.Hurlburt ed. Seattle: Gordon Soules Book Publishers.

Scrivener, David. 1989. *Gorbachev's Murmansk Speech: The Soviet Initiative and Western Responses*,Oslo: Norwegian Atlantic Committee.

Scrivener, David. 1996. *Environmental Cooperation in the Arctic: From Strategy to Council*, Security Policy Library, Oslo: Norwegian Atlantic Committee.

Stefansson, Viljamur. 1922. *The Northward Course of Empire*, New York, Harcourt, Brace and Co.

Stoltenberg, Thorvald. 1992. Barentsregionen: En ny dynamisk ramme for samarbeidet i nord," Speech at the Conference: Fra Nordkalotten til Storkalotten," Rovaniemi, 21. October 1992, Oslo, Norwegian Ministry of Foreign Affairs.

Swartztrauber, S.A. 1965. Alaska and Siberia: A Strategic Analysis, *Naval Review*, US Naval Institute.

Ugryumov, Aleksandr og Vladimir Korovin. 2005. *Tigu-Su. På isflak mot nordpolen*, Forlaget Nord, Tromsø.

Vinnikov, K.Y., A. Robock, R. Stouffer, J. Walsh, C. Parkinson, D. Cavalieri, J. Mitchell, D. Garrett and V. Zakharov. 1999 "Global warming and northern hemisphere sea ice extent," in *Science* 286 (5446) pp. 1934-1937.

Weller, Gunther E. 2000. Climate Change and its Impact on the Arctic Environment in *Impacts of Changes in Sea Ice and Other Environmental Parameters in the Arctic,* Report of the Marine Mammal Commission Workshop, Henry P. Huntington ed., Girdwood, Alaska, 15-17 February, 2000.

Young, Oran. 2009. The Age of the Arctic Revisited: State Change and their Implications for Governance. Presentation at the Arctic Frontiers Conference, Tromsø, Norway, 19 January 2009.

Chapter 8

Asian States in Arctic Affairs

Heather Exner-Pirot

The past decade has witnessed a surge in interest in the Arctic, as global warming trends make oil, gas and shipping routes in the region more accessible. In essence, a 'new' ocean – one that for all intents and purposes has been confined from significant human activity until the past decade, has been opened, and with it enormous potential for resource development and transportation.

Predictably, the newly accessible Arctic Ocean has attracted the interest of a number of Asian states, in particular China, South Korea, Japan and India, who have large populations and a growing need for resources. Perhaps also predictably, the five littoral states of the Arctic Ocean (Canada, Denmark, Norway, Russia, United States) are seeking to limit the influence of non-Arctic states in establishing the parameters of its use. International law supports their right to do so. However the development of the Arctic and its many resources need not be exclusive. In fact, there is much to gain by working cooperatively on developing mines, shipping routes, infrastructure and a regulatory framework that serves all stakeholders' needs, from those of local residents to those of foreign states.

This chapter examines 1) the interests of the Asian states in the Arctic, 2) the role of Asian states in circumpolar affairs, and 3) the possibility for cooperation in the economic development of the region.

Interests of the Arctic States

In the past three years (2008-2011) each of the eight Arctic states, as well as the European Union, have issued official Arctic policies that outline their interests and objectives in the region. None of the Asian states have yet to do so, but that does not mean that their interests in the region are unknown. In general, they revolve around three main issues: economic, strategic and scientific.

Economic

The Arctic is filled with significant deposits of minerals, oil, gas, and fish. Although it is difficult to quantify such untapped resources, the United States

Geological Survey (USGS) estimated on July 23, 2008 that there are 90 billion barrels of undiscovered, technically recoverable oil; 1,670 trillion cubic feet of technically recoverable natural gas; and 44 billion barrels of technically recoverable natural gas liquids north of the Arctic Circle. This accounts for 13% of the undiscovered oil and 30% of the undiscovered gas deposits in the world.

It has become a truism that China and other Asian states have huge resource needs associated with their growing domestic economies, rapid urbanization, increased export processing, and an increase in the demand for oil, natural gas, industrial and construction materials. The Arctic is a region that could help serve those needs. It is thus in the best interests of the Asian states to ensure that access to those resources, both land-based and offshore, is open.

In addition to resources, there would be significant economic gain for Asian industry if trans-Arctic and destinational shipping increases in the near to medium term. South Korea, China and Japan are dominant in global shipbuilding. Amongst Asian industry links to ice-capable ship-building, Samsung Heavy Industries was the first ship manufacturer to develop an Arctic shuttle tanker, which combines the functions of an ice breaker and an oil tanker. STX Offshore and Shipping, a Korean company, along with its subsidiaries, has been responsible for the development of almost 90% of the world's icebreakers. In addition, the development of ABB's Azipod, an electric–pod propulsion system, has led to the development of double-acting vessels, which in practice allows ships to act traditionally in open waters going forward, but capable in ice-infested waters when running astern using the icebreaker bow. Sumitomo Heavy Industries developed the first two ships of this kind, the Mastera (2002) and the Tempera (2003). Many of these shipping companies also build offshore drilling platforms and service vessels that will be needed if and when Arctic offshore drilling expands.

The growth of Arctic shipping could provide an economic boon to the Asian shipbuilding industry and provide an important new source of raw materials for the Asian economy. But perhaps the Arctic's biggest attraction for the Asian states is the possibility of new shipping routes being opened up along the Northwest Passage (Canada), the Northern Sea Route (NSR) (Russia), and across the pole if and when it becomes ice-free during the summer months.

Strategic

Much has been said about the Arctic routes' ability to save time and money by cutting the distance between destinations in the North American eastern seaboard and northern Europe, on one hand, and Chinese, South Korean and Japanese destinations on the other. A recent Chinese article on the subject put the savings at 3-5%, which for seasonal use by a container fleet could save US$2.61-8.14 million annually. Although not an insignificant sum, the potential for savings would vary

further depending on the amount, type and location of ice; the cost of Russian service fees for escort through the NSR ; and demand for Asian exports in an underperforming global economy. While such risks might otherwise diminish the desire to invest in trans-Arctic shipping (the capital investment in ice-capable ships is high), the Arctic routes are attractive strategically, in particular to China, as an alternative to the traditional shipping route through the Indian Ocean.

Inasmuch as China's economy is export-led, it is reliant on container shipping to get its products to market. The majority currently goes through the Indian Ocean, which accounts for half of the world's container shipping. Because of the many geopolitical tensions in that region, this is an undesirable situation for both China and India, especially as it relates to chokepoints in the Strait of Hormuz, between the Persian and Arabian Sea, and the Strait of Malacca, between Indonesia and Malaysia. In particular the Strait of Malacca, through which a large majority of China and India's imported oil, and 40% of all world trade, passes through, is a vulnerable point for Asian states. China is already developing pipelines and additional ports on the northern seaboard of the Indian Ocean in order to reduce its economic and strategic dependence on the Malacca Strait. Trans-Arctic shipping is another option they seem likely to pursue.

In addition to China, the Japanese are pursuing strategic as well as economic interests in the Arctic, although on a smaller scale. Japan's dominant high-tech industry requires rare earth elements in the manufacturing of everything from hybrid vehicles and digital cameras to TV sets and mobile phones. China has a monopoly on rare earths, mining a full 97% of global supplies. Following a dispute in which Japan's Coast Guard arrested a Chinese trawler captain near contested islands in the East China Sea in 2010, China imposed an embargo on exports on rare earths to Japan. As a result, Japan (and other nations) are actively seeking alternative supplies, and Greenland holds one of the richest deposits of rare earths in the world. Thus Japan may also be turning to the Arctic in order to maintain supplies of strategically important resources for its high-tech economy.

Scientific

India, China, Japan and South Korea have been involved in polar research for many years, and their scientific interests in the Arctic and Antarctic precede the current geopolitical activity. All four have established research stations at NyÅlesund, an Arctic research base on the Norwegian Arctic archipelago of Svalbard. All four are also signatories to the Antarctic Treaty System.

Polar research covers a wide spectrum of activities; however global warming and climate changes have increased Arctic research efforts from non-Arctic and non-European states in recent years.While some commentators have painted Asian research in the Arctic as a kind of Trojan horse for economic and political

positioning , Asian research in the Arctic is genuine, legitimate and of broad scientific benefit. The icebreakers that

China, Japan and South Korea have acquired in the past decade that are "[raising] eyebrows among members of the Arctic Council" are designed solely for scientific research. China's Xuelong icebreaker, often touted as "the world's' largest non-nuclear icebreaker," is a Ukrainian cargo vessel that was bought and modified by China in 1993 to support its polar research. Its icebreaking capacity is "insufficient", which is why China has commissioned a more powerful icebreaker, yet to be named, with an expected delivery date in 2014. The majority of the Xuelong's expeditions have been conducted in the Antarctic. Japan's newest icebreaker, the Shirase, was completed in 2009, and replaced the icebreaker of the same name after the original Shirase ended its 25 year run. Like its predecessor, it is being used to support Antarctic research and has not yet made any visits to the Arctic. South Korea also recently commissioned a new icebreaker, the Araon, which was launched in 2009. Korean polar research will be focused on developing a second base in Antarctic for the next few years, however the Araonis expected to travel each year to both the Antarctic and Arctic. Finally, India has ordered an ice-capable research vessel dedicated to polar expeditions, which is due to be launched in 2012.

The point is that there is nothing suspicious, or even particularly new, about Asian interest in polar research. Although there has been a recent increase in Asian interest in Arctic research, this is true of most countries, and a reflection of sustained political and scientific interest in global warming.

Asian States in Circumpolar Affairs

Although the Arctic as a separate geopolitical region within which interestbegan developing in the 1990s, following the end of the Cold War, there was limited outside interest in circumpolar affairs until the mid 2000s. The Arctic Council, the preeminent intergovernmental forum of the eight Arctic states, was established in 1996 to deal with environmental protection and sustainable development in the Arctic, and the little external attention it garnered fell within those issue areas. Among observers welcomed in this era were Poland, Spain, and the Netherlands, as well as NGOs such as the Red Cross. The bar was set quite low for participation; in fact the Arctic Council was notable for its inclusion.

All of this began to change with the release of the 2004 Arctic Climate Impact Assessment (ACIA) report, which stated conclusively that climate changes were occurring in the Arctic. Media and political attention soon broadened to include not only concern for the challenges that climate changes would bring but also anticipation of the opportunities, especially in terms of shipping routes and resource exploitation. Geopolitical tensions peaked in 2007 when a Russian expedition

planted a titanium flag on the seabed of the North Pole in the same week that Canadian Prime Minister Stephen Harper was in the Canadian Arctic making significant military investment announcements. All eyes turned North, and Asian countries became eager to set themselves up as players in the increasingly high-stakes game of divvying up a new ocean.

The obvious first step for getting more involved in Arctic policy decision-making, something the Asian states were eager to do, was to become an observer in the Arctic Council – a non-voting, perfunctory role, but a role nonetheless. Six non-Arctic, European states already enjoyed the privilege when China applied in 2007; South Korea in 2008; and Japan in 2009. The European Commission and Italy also did so. However by that time the Arctic had become a much more exclusive club, as demonstrated by the May, 2008 meeting of the "Arctic Five" (the five states with coasts on the Arctic Ocean) in Ilulissat, Greenland. The meeting was notable both in that it excluded traditional members of the Arctic Council, including Finland, Iceland, Sweden and the indigenous Permanent Participants; and in its affirmation of the Arctic Five's commitment to the 1982 United Nations Convention on the Law of the Sea (UNCLOS), a treaty that protects the Arctic Five's international legal right to almost the whole of the Arctic Ocean. The applications of China, South Korea and Japan were deferred at the biannual Arctic ministerial in 2009, and again in 2011. It is unclear whether the exclusion was meant primarily for the EU, following the European Parliament's call in 2008 for an Antarctic style treaty and banning of the import of seal products in 2009 , or for a rising China. But for political reasons, the Arctic Council did not pick and choose between those applications it felt were benign and those it viewed as a threat, and all applications have been deferred until the 2013 Arctic Council Ministerial at the earliest. It is important to note that this is not an issue in which all Arctic Council members agree. Norway, Iceland, Sweden, Finland and Denmark have indicated their support for accepting new members, while Russia, Canada and the United States have been reluctant.

From a realist perspective, this is predictable. There is a good reason for the Arctic Five, and by extension the Arctic Council, to want to remain exclusive now that something valuable is at stake. Sovereign states are typically power-seeking, and the right of the Arctic Five to control the Arctic Ocean as they see fit is pretty much enshrined in UNCLOS. The Convention allows states to claim rights to the continental shelf up to 350 miles from their coastlines, and even further in some geological circumstances such as exists with the Lomonosov Ridge. Although Russia, Canada, the United States and Denmark have yet to submit their claims (Norway's was approved in 2009), one Chinese scholar, GuoPeiqing, has estimated that up to 88% of the seabed of the Arctic Ocean would be under the control of the Arctic littoral states if the Commission on the Limits of the Continental Shelf were to approve all the existing or expected claims to the Arctic Ocean continental shelf.

This is disconcerting to the Chinese, who are eager to protect their interests in the region, and in particular influence policy development around shipping regulations and resource extraction. Speaking in Svalbard in June 2009, Chinese assistant foreign minister Hu Zengyue stated that "When determining the delimitation of outer continental shelves, the Arctic states need to not only properly handle relationships among themselves, but must also consider the relationship between the outer continental shelf and the international submarine area that is the common human heritage, to ensure a balance of coastal countries' interests and the common interests of the international community."

The phrase "common heritage," which has also been used by Japan , is one that grates the Arctic Five, as it implies that they may not be fully sovereign over what is legally their territory, or that they cannot be trusted to act in the best environmental and economic interests of their own citizens. It is also an argument in which China must walk a fine balance. On the one hand, China and others have emphasized the need for international cooperation, peace, and adherence to international law in the region. However the international law is quite clear and gives the Arctic Five a virtual lock over the Arctic Ocean, something that is contrary to non-Arctic state interests. China in particular has been an advocate, with its United Nations Security Council veto, for respecting states' sovereign rights. To be consistent, it would have to accept the Arctic Five's control over the Arctic Ocean. Already commentators have contrasted China's legal arguments for exclusive territorial sovereignty in the South China Sea with its arguments for a common heritage in the Arctic Ocean.

While this is a subject of irritation, it is unlikely to be one of conflict. The Arctic states are seeking to promote shipping and resource development in their northern regions; China and the other Asian states are willing users and buyers. All parties can benefit from the sustainable development of the region; it is not a zero sum game. On the contrary it is an area in which all stakeholders can make absolute gains.

Possibility for Cooperation

It is becoming obvious that there are many more opportunities for cooperation between Asia and the Arctic than points of contention. Northern economic development is based on resource development. This is unlikely to change as vast quantities of raw material are the Arctic's only comparative advantage – remoteness form markets, expense of infrastructure, and an expensive, unskilled labour force being its other economic traits. Resource development anywhere, but especially in the Arctic, requires significant capital – in many cases billions of dollars. Capital is something China has. Thus one finds a willing buyer and supplier.

One concern seems to be that China's worst behaviours in Africa will be replicated in the Arctic. This includes low wages and lax labour standards, the importation of Chinese workers to the detriment of local residents, and poor environmental safeguards. This behaviour is problematic, but often exceptional, in Africa. However it is wholly unlikely in most of the Arctic: aside from Russia, environmental and labour standards are very high, even world class, and the promise of capital investment is not enough in Canada, USA, and the wealthy Nordic countries to bypass existing legal arrangements, especially on indigenous lands.By contrast, the regulatory framework in Canada's territorial North, as an example, is so stringent it is detrimental to new investment, with layers of aboriginal, territorial, federal, environmental stipulations needing to be satisfied before development can begin.

Needing capital and having stringent regulations in place has not assuaged public concerns over increasing Chinese investment. The 2011 example of a Chinese investment in Iceland is instructive. Chinese business tycoon Huang Nubo offered US$8.8m to landowners for the 300sq km Grimsstadir a Fjollum region, with the objective of building a $100-$200 million eco-tourism resort at the site. The move sparked concern from some Icelandic politicians and the public in general that the investment was a strategic gambit from the Chinese to get a foothold in the Arctic. At the same time, Iceland's President,Ólafur Ragnar Grímsson had been actively courting Chinese and Indian investment and cooperation, particularly following Iceland's financial crash in 2008 when it was felt they were abandoned by British, American and other Western allies. Much of the concern over the current Huang development seems to be that the Chinese will use it as a base for a future Chinese trans-shipment port in the Arctic. This is ironic since it is Iceland itself that has sought to market itself as a possible destination for trans-shipment of goods from Asian markets to European and North America ones.

The Icelandic reaction should not be viewed as exceptional; rather it highlights what is likely to be a challenge to Asian, and especially Chinese investment in the Arctic in the coming years. On the one hand, governments, indigenous groups and northern businesses in the Arctic region are seeking Asian investment. As the Prime Minister of Greenland stated in November 2011, "Greenland is also showing an interest in China: my minister for minerals, industry and labor is going to China this day [November 4] on an official visit. I would see a future cooperation as a very positive one, and we welcome the Chinese interest."

On the other hand, opinion is deeply split as to whether and how to welcome it, and many remain suspicious of Chinese overtures. It seems that although the possibility for mutually beneficial cooperation exists, Arctic states and their people are struggling to find it.

Conclusions

As the Arctic is transformed by global warming and resources and shipping routes become increasingly accessible, Asian interest is expected to increase. This is unlikely to result in significant tension or conflict. But like any new relationship, it must be managed carefully. What can be expected with regards to Asian interests in Arctic affairs in the future?

The Arctic Five have a legal lock on the Arctic Ocean, from their 200-mile Exclusive Economic Zones (EEZs), where most of the recoverable oil and gas is expected to be found, to their extended continental shelf, which will likely eat up almost 90% of the ocean's seabed. Arguments from China, Japan and other countries in favour of treating the Arctic Ocean as a common heritage of mankind akin to the Antarctic are not likely to go far. As such, Asian states might influence, but will not direct, Arctic policy.

Practically this may not be as significant as some Asian commentators fear. Regulation in the region, whether it be on shipping, fishing, or environmental issues, is increasingly multilateral and non-discriminatory. Thus Asian activity in the Arctic will be subject to the same limitations as those of Arctic states. The sooner regional governance arrangements are articulated, for example with the International Maritime Organization's (IMO) Polar Code on shipping, the sooner Arctic and non-Arctic states will invest in the infrastructure and assets needed to capitalize on the newly accessible Arctic. Arctic regional governments are more likely to compete for Asian investment than ostracize it, as public policy increasingly trends towards large scale resource development as the avenue for northern development. The Arctic is vast and underdeveloped; Asian investors will likely find many willing hosts. The challenge will be in ensuring local and national regulations are followed and enforced, but this is something the cautious Chinese will be likely to respect rather than try to bypass – one poor outcome could damage their reputation in the region for years.

As to China, Japan, and South Korea's applications to be observers on the Arctic Council, one must wonder what the fuss is about for Russia, Canada and the United States. As it stands, observers have next to no say on Arctic Council matters, but tend to sit mute through the proceedings until one of their cohort addresses the Council on all observers' behalf. The Arctic Council member states are the only parties with votes, and at any rate make political decisions based on consensus. Additional observers are unlikely to detract from the influence of current members. Norway, Iceland and Denmark have been vocal in their support for Asian inclusion in the Arctic Council, a break from the tradition of keeping Council discussions 'in the family'; thus it seems likely to be a matter of time before they are admitted. One might also expect the Asian states to come forward with their own Arctic policies in the near future, highlighting concern for the environment, respect for

indigenous peoples' rights, interest in sustainable resource development, a well-developed shipping regime, and promotion of international cooperation. A number of Asian commentators have already called on their governments to do so.

It has been said that the Chinese character for crisis is the same as that for opportunity. Arctic and Asian states are now at a crossroads in determining which perspective they will adopt with regards to future cooperation in the region. Inasmuch as gains can be made on both sides, stakeholders will likely see increasing Asian interest as an opportunity.

References

Arctic Climate Impact Assessment. 2004. Cambridge, UK: Cambridge University Press.

Backus George A. and James H. Strickland. 2008. Climate-Derived Tensions in Arctic Security, *Sandia Report*, September 2008, Available online at: https://cfwebprod.sandia.gov/cfdocs/ CCIM/docs/Tensions_in_Arctic_SecurityFinal.pdf].

Brautigam, Deborah.2011. Africa's Eastern Promise , *Foreign Affairs*, January 5, 2010. dePomereu, Jean. "Dongmin Jin on Korea's Polar Ambitions," Science Poles, September 30, 2010, Available online at http://www.sciencepoles.org/articles/ article_detail/dongmin_ jin_on_koreas_polar_ambitions1/] on November 4, 2011.

Horinouchi, Hidehisa. 2010. Japan and the Arctic: Presentation at the Japanese-Norway Polar Seminar, April 26, 2010. Available online at http://www.norway.or.jp/PageFiles/395907/JAPAN_AND_THE_ARCTIC.pdf

HuaXu, JiaZhifang, Jin Dashan and HuaFengjunOuyang.2011. The Potential Seasonal Alternative of Asia-Europe Container Service via Northern Sea Route Under the Arctic

Ilulissat Declaration, May 29, 2008. [http://www.oceanlaw.org/downloads/arctic/ Ilulissat_Declaration.pdf]

Jakobson, Linda. "China Prepares for an Ice-Free Arctic". SIPRI Insights on Peace and Security, no. 2010/2. 2010.

Kaplan, Robert. "Center Stage for the Twenty-First Century - Power Plays in the Indian Ocean" Foreign Affairs, Vol. 88, Issue 2 (March/April 2009).

Kim, Younkyoo and Stephen Blank. "The Arctic: A New Issue on Asia's Security Agenda".The Korean Journal of Defense Analysis, vol. 23, No. 3, September 2011, 303–320.

Laserre, Frederic. "China and the Arctic: Threat or Cooperation Potential for Canada?,"Canadian International Council (CIC), China Papers No. 11, June 2011.

Lei,Hou. "China to Launch New Icebreaker in 2014," China Daily, November 2, 2011, accessed from [http://www.chinadaily.com.cn/usa/china/2011-11/02/content_14025606. htm] on November 3, 2011.

Paul McLeary, "The Arctic: China Opens a New Strategic Front" World Politics Review, May 19, 2010.

Sakhuja, Vijay. "China: Breaking into the Arctic Ice," Issue Brief: India Council of World Affairs, 2010, [http://www.icwa.in/pdfs/ib%20%20dr.pdf].

Saran, Shyam."Why the Arctic Ocean is Important to India," Business Standard, June 12, 2011. [http://business-standard.com/india/news/shyam-saran-whyarctic-ocean-isimportant-to-india/438716/].

Sea Ice Retreat, *Maritime Policy and Management*, September 2011, Vol. 38, Issue 5.

USGS Newsroom, "90 Billion Barrels of Oil and 1,670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic," July 23, 2008.,[http://www.usgs.gov/newsroom/article.asp?ID=1980].

Walawalkar, Mrinalini. "Antarctica and Arctic: India's Contribution". Current Science, vol. 88, no. 5, March 2005.

Ward, Andrew and Leslie Hook. "Iceland's President Welcomes Chinese Interest," Financial Times, September 2, 2011, accessed from [http://www.ft.com/intl/cms/s/0/4716d5c2-d57f-11e0-9133-00144feab49a.html#axzz1d8vOAHpx] on November 8, 2011.

Wright, David. "Canada Must Stand up Against China's Increasing Claim to Arctic," Calgary Herald, March 7, 2011.

Wright, David. "The Panda Bear Readies to Meet the Polar Bear: China and Canada's Arctic Sovereignty Challenge," Canadian Defense and Foreign Affairs Institute (CDFAI), March, 2011.

Zweig, David and Bi Jianhai, "China's Global Hunt for Energy," Foreign Affairs, September/October 2005.

No author. "First Scientific Expedition to Arctic" in India Current Affairs, March 4, 2011. [http://indiacurrentaffairs.org/first-scientific-expedition-to-arctic/].

Chapter 9

Canada's Northern Strategy and East Asian Interests in the Arctic

P. Whitney Lackenbauer and James Manicom

Abstract

This chapter examines Canadian perceptions of East Asia's Arctic interests. Whereas some commentaries conceptualize Asian states, particularly China, as potential threats to Canada's interests in the Arctic, the basis for this alarmist rhetoric (apart from more generalized discourses associated with the "rise of Asia") is speculative and imprecise. Using Canada's Northern Strategy (Government of Canada 2009) and the Statement on Canada's Arctic Foreign Policy (Department of Foreign Affairs and International Trade 2010) as filters, this paper suggests where Asia's Arctic interests may converge or diverge with those of Canada. It also recommends various messages that Canada may wish to emphasize in its interactions with Asian states to safeguard its national interests, promote sustainable development for the benefit of Northerners, and enhance cooperation and constructive dialogue in the circumpolar world.

> The geopolitical importance of the Arctic and Canada's interests in it have never been greater. This is why our government has launched an ambitious Northern Agenda based on the timeless responsibility imposed by our national anthem, to keep the True North strong and free.
>
> —*Rt. Hon. Stephen Harper, 2008*

> China's every move evokes interest. The rise of a large power has throughout history caused jitters, and China is no exception. No one knows with certainty how China will use its power in the coming decades, despite the Chinese Government's assurances that its rise will be peaceful and that it seeks to promote a harmonious world. Now, even though the Arctic is not a foreign policy priority, China's growing interest in the region raises concern — even alarm — in the international community about China's intentions.
>
> — *Linda Jakobson and Jingchoa Peng, 2012*

Introduction

Canadian political statements over the last decade make repeated reference to the centrality of the Arctic to Canada, and the growing international recognition that the Arctic plays a fundamental role in global systems. The Canadian Arctic comprises more than 40 percent of the country's land mass, 162,000 kilometres of coastline and approximately one-quarter of the global Arctic. A torrent of recent commentaries point to the complex array of regional opportunities and challenges emerging in the face of rapid environmental change — and in anticipation of escalating rates of future change. Whether viewed as a barometer of global climate change, a scientific or resource frontier, a transit route to elsewhere, or a homeland, the Arctic has captured the attention of the world — from Sanikiluaq to Seoul, Tuktoyaktuk to Tokyo, Baker Lake to Beijing. Canada's historic and ongoing dilemma is how to balance sovereignty, security, and stewardship in a manner that protects and projects national interests and values, promotes sustainable development and healthy communities, and facilitates circumpolar stability and cooperation.

The significance of the Arctic in Canadian political discourse has certainly grown since Stephen Harper became prime minister in 2006 and initially trumpeted the idea that "use it or lose it is the first principle of sovereignty." Canadians were inundated with brawny messages about resource development and the idea of Canada as an "Arctic superpower," aimed particularly at voters with deep-seated anxieties about Canada's potential loss of sovereignty. The ground had been already laid for this kind of rhetoric, with Canadian commentators mobilizing a cast of would-be challengers to Canada's Arctic "sovereignty." The United States was ostensibly seeking to undermine Canada's position about the Northwest Passage (NWP) forming part of its internal waters. This was coupled with Canada's supposed insecurity stemming from an outstanding boundary dispute in the Beaufort Sea (with its potential resource riches). In practical terms, however, the United States — Canada's primary trading partner and key ally — remains hard to sustain as an existential threat to Canada's territorial integrity or sovereignty. When Denmark sent naval ships to Hans Island, a tiny rock subject to competing claims with Canada, Canadian commentators quickly cast this quiet neighbour and NATO ally as a potential threat. University of Calgary political scientist Rob Huebert's (2005) memorable description that the Vikings had returned and might trigger larger doubts about Canada's claim to the entire Arctic archipelago grabbed headlines for a short time, but reassuring diplomatic statements and the reality of the extent of the Hans Island dispute (which was confined to the insignificant rock itself) silenced the alarm. Russian explorer Artur Chilingarov's flag-planting exploit at the North Pole in 2007, coupled with Russia's military revitalization plans and resumption of strategic bomber flights in the Arctic, and the Putin-Medvedev

regime's belligerent political rhetoric reassuring Russians that they would defend Russia's Arctic resources, created obvious conditions to resurrect the Russian bear as a potential Canadian adversary. Following the Ilulissat Declaration in May 2008, which committed Arctic states to peaceful dispute resolution, anxieties about regional conflict were quelled. Voices indicated that Canada and Russia actually had common, vested interests in circumpolar stability, which made the Russian threat seem less acute.[1]

Canada's official northern strategy and Arctic foreign policy statements have sent more positive signals about Canada's sovereign position and about opportunities for international cooperation in the circumpolar north. This dual messaging, emphasizing sovereignty, national security and national interests on the one hand, and international cooperation and stewardship on the other, reveals Canada's bifurcated mindset on Arctic issues. Despite the complexity of Canada's official position, it seems that Canadian interest in the Arctic cannot be sustained — at least in academic and media circles — without a threat narrative. The rising interest of so-called "new actors" in circumpolar affairs, particularly China and other East Asian states, offers renewed uncertainty and the possibility of a new threat narrative. Canadian commentators have been accordingly suspicious of East Asian intentions, despite Canada's positive bilateral relations with all three Northeast Asian states.

The basis for this Asia-in-the-Arctic alarmist rhetoric is speculative and imprecise, originating from (and largely reflective of) generalized discourses associated with the "rise of Asia" and Arctic change and sovereignty. Using *Canada's Northern Strategy* (Government of Canada 2009) and the *Statement on Canada's Arctic Foreign Policy* ([SCAFP] Department of Foreign Affairs and International Trade [DFAIT] 2010) as filters, we suggest where East Asian states' Arctic interests may converge or diverge with those of Canada. There are considerable synergies between the interests of East Asian states and the Canadian Arctic agenda, making those Canadians who conceptualize Asian states as an Arctic threat seem especially narrow-minded — particularly given the scientific, environmental and resource development issues at play. The paper ends with various messages that Canada may wish to emphasize in its interactions with Asian states to safeguard its national interests, promote sustainable development for the benefit of Northerners, and enhance cooperation and constructive dialogue in the circumpolar world. Canada should develop a clear message that clarifies its Arctic agenda, indicates

[1] On these themes in the Canadian context, see for example Griffiths (2003), Huebert (2003), Coates et al. (2008), Byers (2009), Griffiths, Huebert and Lackenbauer (2011), Lackenbauer (2010) and Dodds (2011). International overviews include Borgerson (2008), Zellen (2009), Emmerson (2010) and Landriault (2013).

opportunities for cooperation and collaboration, and corrects misconceptions about Canada's position on sovereignty and sovereign rights in the region.

Canadian Perspectives on East Asia's Interests in the Arctic

It is beyond the scope of this study to provide a robust interpretation of East Asian nations' strategies, commercial interests, scholarly literature and media commentary on the Arctic; other papers in this series examine how China, Japan and South Korea view the Arctic. Rather than reiterating these points, this paper analyzes how Canadian scholars and journalists infer motives into Chinese and other East Asian official statements and academic works.

Most Canadian attention on East Asian states' Arctic interests focusses on China. An Ekos Research (2011) report conducted for the Munk-Gordon Arctic Security Program is telling. According to the report, "respondents in each of the eight member states of the Arctic Council were presented with a list of countries and asked which one they would be *most* comfortable dealing with and which they would be *least* comfortable dealing with on Arctic issues….China was identified as the least desired partner by every nation except Russia" (xxii). Furthermore, Canadians expressed the lowest levels of support for including non-Arctic states in the Arctic Council and granting them "a say in Arctic affairs" (xxiv).

Although Canadians seem to view China's engagement in Arctic affairs with skepticism and even distaste, there is a striking lack of substantive discussion in academic and popular commentaries about *how* or *why* China constitutes a threat to Canada's Arctic interests. China has not unveiled an Arctic strategy, nor is there any official indication that it plans to do so. Accordingly, insight into why Canadians perceive China this way must come from more general data. A report commissioned by the Asia Pacific Foundation of Canada (2012, 3) confirms that "Canadians across the country are increasingly attuned to Asia and to Canada's place in the Asia Pacific region." This was particularly true of Northern Canada, where 57 percent of respondents reported that they paid more attention to Canada's relations with Asia in the previous year than they ever had in the past (12, 16). Twelve percent of Canadians polled expressing "warm" (favourable) feelings toward China, while 29 percent indicated "cold" (unfavourable) ratings of China. This trend also fit with the generally favourable or "warm" feelings toward Western countries and unfavourable "cool" feelings to other Asian countries, except Japan (3, 7).

According to the poll results, Canadians perceived that shifts in the international order placed China in an increasingly powerful position (2012, 3). Two-thirds of Canadians polled believed that China's global influence would surpass that of the United States over the next decade. More than one-third of Canadian respondents described the United States as "in decline," while 42 percent perceived China as "growing" and 30 percent described it as "strong" (4, 9, 26). Nonetheless,

Canadians ranked China the "least favourable" overall. The leading factor was Canadians' perceptions of Chinese governance. Forty-five percent of respondents described China as authoritarian; 37 percent described it as "corrupt"; 34 percent as "threatening" (9). Only 4 percent described China as "friendly" (ibid.). While 5 percent expressed a general feeling of admiration towards China, 22 percent said that they "disliked" the country (ibid.).

The poll found that Canadians tend to focus on economic relationships, and consider China to be important to Canada's prosperity. Accordingly, more than half of the respondents saw China's increasing economic power as more of an opportunity than a threat, perceiving opportunities for trade and investment and for diversification of global economic and political relationships (2012, 14). A majority of Canadians (and 63 percent of Northerners) believed that "Canada must act now to take advantage of Asia's need for energy resources," but this did not extend to receptiveness for foreign ownership of Canadian resources by state-controlled companies (29). A majority of Canadians, however, remain "unconvinced that the economic benefits of Asia's investment in Canada's energy sector outweigh concerns about foreign ownership of our natural resources" (4–5). The Asia Pacific Foundation concluded that Canadians retain "a lingering hesitation and concern about Asia, particularly China" (3). Although aware of the benefits of Asian foreign investment in Canada, the poll found that "fewer than one-in-five Canadians would be in favour of state-controlled companies from China…buying a controlling stake in a major Canadian company" (ibid.) It also noted a six-point increase in the proportion of Canadians worried about China's military power in the Asia Pacific region (ibid.).

These broader concerns about China's regional and global aspirations frame Canadian observers' interpretations of China's Arctic interests and agenda, which conform to a broader Western trend. Gang Chen, a researcher at the East Asian Institute, National University of Singapore, observes that:

> As an East Asian power that has neither Arctic coast nor the Arctic Council membership, China's open statement of not having a strategic agenda regarding the melting Arctic has been interpreted in dichotomous ways: some take it as a genuine expression from the Chinese government while others regard it as a tactic taken by the rising power to hide its real intention there due to its limited influence in the remote Arctic region. Such a divergence over whether China is following an Arctic strategy to secure its long-term economic interest or even geopolitical influence is analogical with, and to some extent, can be perceived as part of the early debates over whether China has a calculative grand strategy. (2012, 358–359)

This split in interpretation is clearly evident in Canadian commentary. On the one hand, alarmists — centred around what we label the "Calgary school" of David Wright and Rob Huebert — suggest that Canadians should be wary of East Asian states (particularly China) as revisionist actors with interests counter those of Canada. On the other hand, commentators such as Frédéric Lasserre suggest that Canada's national interests in the Arctic are generally compatible with those of East Asian countries and see opportunities for collaboration and mutual benefit.

University of Calgary historian David Wright is not an Arctic expert, but his linguistic skills have made him a leading commentator on what Chinese academics are writing about Arctic issues. His overarching message is that Canadians must recognize the attention that "astute and acutely observant geostrategic thinkers" in China have taken in the region (2011a, 1). Wright argues that "the Canadian Arctic has what China wants: natural resources and the possibility of a major new shipping route. China knows that Canadian control over these resources makes Canada a major international player, a country with natural resource wealth and geostrategic advantage befitting its sheer geographical size, but out of proportion with its relatively small population" (ibid., 1). He also notes that "there is at present quite a bit of room for discussion and debate in China over this issue, both in the halls of power in Beijing and, to a surprisingly open and public extent, in academic journals and popular news media" (2011b). While observing that Beijing has yet to formulate an official Arctic policy, he asserts that "what non-official observers are writing should worry Canadians" (ibid.). Amplifying the voices of the most aggressive Chinese analysts, Wright points to China's perceived entitlement to the resource riches of the Arctic as the world's most populous country, as well as its desire to see most of the Arctic basin remain "international territory [*sic*]" and to dilute Canada's sovereignty over the [NWP] to the point of "meaninglessness" (ibid.). Wright reinforces this concerned message in another study, recommending that:

> American policy makers should be aware that China's recent interest in Arctic affairs is not an evanescent fancy or a passing political fad but a serious, new, incipient policy direction. China is taking concrete diplomatic steps to ensure that it becomes a player in the Arctic game and eventually will have what it regards as its fair share of access to Arctic resources and sea routes. China has already committed substantial human, institutional, and naval resources to its Arctic interests and will continue to do so, likely at an accelerated rate, in the future. (2011c, 32)

This echoes University of Calgary political scientist Rob Huebert, who has signalled alarm about East Asia's Arctic intentions for more than a decade. As part of the "sovereignty on thinning ice" narrative that he developed in the early 2000s,

Huebert has frequently cited the purportedly unannounced arrival of the Chinese research vessel *Xue Long* at Tuktoyaktuk in 1999 as an example of Canada's negligible control over activities in its Arctic, and the host of sovereignty-related challenges *potentially* posed by Asian states with their cutting-edge icebreaking capacity, insatiable appetites for resources (including water), and little vested interest in the status quo (eg. *Globe and Mail* 2006).

As a regular fixture in the Canadian media on Arctic issues, Huebert has consistently framed twenty-first century Arctic dynamics through a threat narrative. For example, in portending a "new Arctic age," Huebert (2008) stresses that the region is "on the verge of becoming a more complicated and crowded area" and Canadians had "to meet many challenges." To control its Arctic, he asserts, Canada needs to act decisively to deal with "some of the challenges we know about: Climate change, resource development, globalization (the South Koreans are entering the market to build ice-capable vessels, the Japanese are investing heavily in the study of Arctic gas hydrates off the coast of Canada, and China is going to become an Arctic player as well), Russia is on the rise again, and laws governing the maritime Arctic are in flux" (ibid.). Huebert continuously reiterates his concerns about East Asian interests in the region in his regular presentations and media statements. Commenting on the "real possibility" of future tension in the Arctic, Huebert (2012) emphasizes China's looming impact on Arctic security. "What we're seeing with the Chinese is that they've made it very clear that they want to be major players in the Arctic for reasons of transportation, natural resources, scientific research and strategic concerns," he notes (quoted in Yundt 2012). "They will be there. They're spending the money. Their navy is being modernized as we speak at a time when the American navy is facing huge budget cuts" (ibid.).

Other commentators have carried this line of argument to its logical conclusion. Victor Suthren (2006), the director general of the Canadian War Museum from 1986–1997, justified the need for naval investments by linking China and the Arctic:

> Canada's Arctic is melting into an ice-free major-ocean coastline that will provide the government of the day with the challenge of policing three busy ocean coasts; the extraordinary economic expansion of China is now being followed by heavy defence expenditures on developing a large and capable Chinese blue-water navy; and the vital seaborne trade that lies at the heart of Canadian economic well-being will see the flow of thousands of containers into our ports increase fivefold within our lifetimes. A seaborne terrorist attack on North America is increasingly a possibility.

The following year, Rear Admiral Tyrone Pile, the commander of Canada's Maritime Forces Pacific, told *The Calgary Herald* (2007) that the Chinese Navy

would soon have twice as many submarines as the US Navy, leading the newspaper to speculate that China might project its power "as Great Britain and the U.S. once did." Pile indicated that China was aware that the NWP could soon be navigable and would "trim thousands of kilometres from Asia to Europe by bypassing the Panama Canal" (quoted in *The Calgary Herald* 2007). This raised troubling questions: "how prepared is Canada to enforce its sovereignty claims in the region, if foreign ships, Chinese or otherwise, try to take advantage of this Arctic melting — without the formality of Ottawa's approval? What if those vessels are supported by their country's warships?" (*The Calgary Herald* 2007). The *Herald* editorial concluded that Canada had to achieve regional dominance in its northern waters to "deter a future Arctic sovereignty challenge" (ibid.; Grant 2010a).

Huebert (2012, 1) recently declared that "China not only is interested in Arctic issues but is also actively developing the means to play an increasingly powerful position in the region. This has caught Canada off guard. Given the growing economic wealth and power of the new China, Canada needs to take into account Chinese interests in the Arctic." Perhaps because he is writing in his capacity as a board member of the Canadian Polar Commission, Huebert is rather tentative in his conclusions but intimates a growing complexity in the Sino-Canadian Arctic relationship:

> Very few people had even thought that such a relationship was likely or possible just a few years back. But China's determination to understand the changes that are now occurring in the Arctic, and to avail itself of the opportunities that may arise as a result, will increasingly challenge Canadian decision-makers. The Chinese are willing to approach their new arctic enterprises in a cooperative fashion; but they have made it equally clear that they will proceed regardless of the response from the other arctic states, including Canada. They are clearly making the expenditures to transform themselves into a major arctic power. This will bring opportunities for mutual gain, as Canada can benefit from working with the Chinese on a wide range of issues, but China is beginning to view the Arctic in a broader geo-political context, and on this level Canadian and Chinese interests may not always meet. (ibid., 6)

Predicting that China will "soon become much more powerful," Huebert urges that "Canada would be wise to start thinking much more seriously about this increasingly complex and interesting relationship" (ibid.).

Does this complexity portend divergent interests and conflict? Laval University geographer Frédéric Lasserre offers more optimistic appraisals of China's Arctic interests. Responding to scenarios positing China as a challenger to Canada's Arctic sovereignty, Lasserre (2010) refutes "prevailing assumptions in the general

literature…that the Chinese government and Chinese shipping companies are merely waiting for the [NWP] to open up a bit more before launching full-scale service across Arctic Canadian waters between Asia and Europe." He finds no evidence that shipping companies' strategies seriously contemplated the NWP as an attractive deepwater transit route, or that China sought to claim territorial rights in the region. Consequently, Lasserre sees China's growing interest in Arctic affairs as "a good opportunity for Canada to voice its desire to foster cooperation in the region" and advance its interests through enhanced polar shipping regulations, scientific collaboration and adherence to international law (ibid.).

Lasserre's message fits with European scholarly literature that also avoids alarmist rhetoric. Linda Jakobson and Jingchao Peng (2012) remark that while non-Chinese observers refer to China's "more assertive" Arctic actions, "China's Arctic policies are still in a nascent stage of formulation." They emphasize that "China has not published an Arctic strategy and is not expected to do so in the near- to medium-term" (ibid.). Nevertheless, in a low-key, pragmatic and measured way, Chinese officials have taken steps to investigate and "protect" China's regional interests, emphasizing the global impacts of the melting sea ice. Jakobson and Peng (2012) place the Chinese government's key interests in three broad categories: to strengthen its capacity to respond appropriately to the effects that climate change in the Arctic will have on food production and extreme weather in China; to secure access, at reasonable cost, to Arctic shipping routes; and to strengthen China's ability as a non-Arctic state to access Arctic resources and fishing waters.

These interests are reasonable, conform with international law and are compatible with Canada's foreign and domestic policy priorities, as long as non-Arctic actors respect Northerners' interests and Canadian sovereignty and sovereign rights. Most Canadians, however, are conditioned to conflate external interests in the Arctic with threats. This is tied to a long history of anxiety borne of sporadic national and political interests, economic underdevelopment in some regions and sectors of the northern economy, and chronic insecurity about "sovereignty" loss.

Canada and the Arctic: A History of Vacillating Interest, Driven by Crisis Reaction

Canada inherited its High Arctic from Great Britain in 1880, but governed these territories in, to borrow Canadian prime minister Louis St-Laurent's often-quoted quip, a "fit of absence of mind" until after World War II. The primary impetus for major development was the Cold War, which placed the Arctic at the centre of superpower geopolitics and the US circumpolar security agenda in conflict with Canada's sovereignty. The United States largely dictated the pace of military modernization in Canada's North and the accompanying socio-economic, cultural

and environmental impacts. Brief bursts of national interest in the Arctic followed perceived sovereignty challenges in 1969 and 1985, leading Canadian governments to clarify the country's sovereignty position and to promise investments in northern defences, but political attention faded when the threats did. Civilian projects in the Arctic were similarly episodic and incomplete. As a result, the Canadian Arctic remains an unfulfilled political and economic opportunity, despite major domestic achievements like the creation of the Inuit-majority territory of Nunavut in 1999 (eg. Coates et al 2008; Grant 2010b).

With the end of the Cold War, the official discourse in Canada on Arctic affairs shifted away from continental security and narrow sovereignty interests to emphasize circumpolar cooperation and broad definitions of security prioritizing human and environmental dimensions. Canada was an early champion of the Arctic Council and promoted the inclusion of Aboriginal permanent participants at the table. In 1997, a parliamentary committee recommended that Canada's relations focus on international Arctic cooperation through multilateral governance to address pressing "human security" and environmental challenges in the region. Environmentally sustainable human development was "the long-term foundation for assuring circumpolar security," Bill Graham, chair of the House of Commons Standing Committee on Foreign Affairs and International Trade, explained, "with priority being given to the well-being of Arctic peoples and to safeguarding northern habitants from intrusions which have impinged aggressively on them" (Government of Canada 1997). This message was summarized in a policy statement released by the Liberal government in June 2000, which promoted four main pillars: enhancing the security and prosperity of Canadians (especially Northerners and Aboriginal peoples); asserting and ensuring the preservation of Canada's Arctic sovereignty; establishing the circumpolar region as a vibrant geopolitical entity integrated into a rules-based international system; and promoting the human security of Northerners and the sustainable development of the Arctic (DFAIT 2000).

Early in the new millennium, climate change reports, vigorous academic and media debates, and hyperbolic rhetoric over boundary disputes like Hans Island and the status of the NWP raised acute concerns about Canadian sovereignty. Canada's International Policy Statement, released by Prime Minister Paul Martin's Liberal government in 2005, identified the Arctic as a priority area given "increased security threats, a changed distribution of global power, challenges to existing international institutions, and transformation of the global economy" (DFAIT 2005). The next two decades were anticipated to bring major challenges requiring investments in new military capabilities and creative diplomacy. "In addition to growing economic activity in the Arctic region, the effects of climate change are expected to open up our Arctic waters to commercial traffic by as early as 2015," the statement noted (ibid.). "These developments reinforce the need for Canada to monitor and control events in its sovereign territory, through new funding and new tools" (ibid., 3).

Although the Liberal government fell before it could implement its vision, it had intertwined sovereignty and security in political rhetoric and strategic documents.

The Canadian North was a key component of the Conservatives' 2005 election platform, which played on the idea of an Arctic sovereignty "crisis" demanding decisive action. Stephen Harper (2005) promised that Canada would acquire the military capabilities necessary to defend its sovereignty against external threats:

> The single most important duty of the federal government is to protect and defend our national sovereignty....It's time to act to defend Canadian sovereignty. A Conservative government will make the military investments needed to secure our borders. You don't defend national sovereignty with flags, cheap election rhetoric, and advertising campaigns. You need forces on the ground, ships in the sea, and proper surveillance. And that will be the Conservative approach.

Harper's political message emphasized the need for Canadian action, with particular attention to conventional military forces, differentiating his government from the Liberals whom he believed had swung the pendulum too far toward diplomacy and human development.

Beginning with the Ilulissat Declaration in May 2008, however, the Canadian government's official statements have adopted a more optimistic and less bellicose tone. In his Whitehorse speech on March 11, 2009, then Minister of Foreign Affairs Lawrence Cannon (2009) acknowledged that geological research and international law — not military clout — would resolve boundary disputes. He emphasized collaboration and cooperation, stating that "The depth and complexity of the challenges facing the Arctic are significant, and we recognize the importance of addressing many of these issues by working with our neighbours — through the Arctic Council, other multilateral institutions and our bilateral partnerships….Strong Canadian leadership in the Arctic will continue to facilitate good international governance in the region" (ibid.).

Canada's Northern Strategy and Arctic Foreign Policy: Where and How East Asia Fits

DFAIT released the SCAFP in August 2010, articulating Canada's international efforts pursuant to the *Northern Strategy*. This document emphasizes the importance of the Arctic in Canada's national identity and its role as an "Arctic power." The overall message mirrors the general strategy's language, outlining a vision for the Arctic as "a stable, rules-based region with clearly defined boundaries, dynamic economic growth and trade, vibrant Northern communities, and healthy and

productive ecosystems" (Government of Canada 2009; 2013a). Implementing a vision that supports sovereignty, security and stewardship will entail ongoing discussions about how to balance the interests of the Arctic states, Northern peoples, non-Arctic states and organizations, development and transportation companies, and other groups with interests in the region.

The SCAFP provides a list of other priorities for international attention. The remainder of this paper explores how these interact with East Asian interests in the Arctic, as understood by Canadian and other Western commentators.

Sovereignty: Engaging with Neighbours to Seek to Resolve Boundary Issues

Predictably, the first and foremost pillar of Canada's foreign policy in the SCAFP is "the exercise of our sovereignty over the Far North" (DFAIT 2010, 4). The statement highlights that "protecting national sovereignty, and the integrity of our borders, is the first and foremost responsibility of a national government. We are resolved to protect Canadian sovereignty throughout our Arctic" (9). The hardline security message that had figured prominently in earlier statements is muted and the tone of cooperation with circumpolar neighbours and Northerners is amplified. The SCAFP commits Canada to "seek to resolve boundary issues in the Arctic region, in accordance with international law" (6). While such disputes pose no acute sovereignty or security concerns to Canada, most commentators see them as a political liability.

While it is not a "boundary" dispute, Canada's legal position that the NWP constitutes internal waters is not universally accepted. The United States has taken a public position suggesting that the passage is an international strait (although it has never been used as such in functional terms), but most other countries have remained silent on the issue. Canadian commentators often assume that, given their interests as maritime nations, East Asian states would oppose Canada's position. Wright, for example, observes that "some Chinese scholars are carefully examining Canada's claims of historical sovereignty over the Arctic in general and the [NWP] in particular," indicating that "Beijing does not want to affirm the accuracy or appropriateness of Canada's historical claims" (2011a, 1-2). Although he concedes that "the small number of scholars in China who consider these claims in detail seem largely to end up sympathetic with, and supportive of," the Canadian position, he reiterates that "the Chinese government itself does not seem ready to affirm Canadian Arctic sovereignty" (ibid.). Wright suggests that "Canada needs to be on its guard against Chinese attempts to water down Canada's Arctic sovereignty and should strengthen cooperation with democratic Arctic states for the security and stability of the region" (ibid.).

Although some Canadian commentators point to Chinese scholarly statements that raise questions or doubts about Canada's legal position on the NWP, a closer appraisal suggests that the Chinese are often citing the work of these same Canadian scholars in making their case. Thus, there is a deeply flawed circular logic at work when Canadian commentators, such as Huebert, point out vulnerabilities in Canada's position, and then use East Asian commentators' reference to these potential vulnerabilities as proof that their concerns are warranted. Clearly, more careful analysis of the source(s) of East Asian analyses are required before drawing conclusions about their stance on Canada's legal position regarding its internal waters.

Contrary to hawkish perspectives circulated by the Calgary school and in the popular media, China is unlikely to challenge either Canada's position on the NWP or its straight baselines. China may have interest in Arctic shipping lanes, but its own interests as a coastal state — for example, its perspective on the Qiongzhou Strait — are virtually identical to Canada's perspective on the NWP. Furthermore, China (and indeed all East Asian states) has made straight baselines claims based on a liberal interpretation of article 7 of the United Nations Convention on the Law of the Sea (UNCLOS) and is therefore unlikely to challenge Canada's position — unless Canada were to join the United States in its comprehensive opposition to Asian states' maritime claims (see Kim 1994: 899).

Conversations with Asian academics support this perspective and reinforce the probability that East Asian states will respect settled maritime claims in the Arctic. Furthermore, Chinese scholars emphasize that a central tenet of Chinese foreign policy is non-interference in other countries' internal affairs. Consistent with this principle, they indicate that China will not interfere in Arctic states' exercise of sovereignty or dispute the rights of coastal states to establish extended continental shelves. In the end, it is highly probable that Canada will assume jurisdiction over as much continental shelf as is permissible under UNCLOS and will settle overlaps with its Arctic neighbours through negotiation, regardless of Asian preferences. For their part, Asian states look forward to conducting research (in compliance with Arctic state jurisdictions) that supports resource exploitation in prospective areas such as the Beaufort Sea (Manicom, personal interview with Guo Peiqing, Qingdao, November 20, 2012).

As Yang Jian, vice president of the Shanghai Institutes for International Studies, explains in a commentary for the 2012 Arctic Yearbook, "For China, Arctic affairs can be divided into those of a regional nature and those of global implications. It has been China's position that the former should be properly resolved through negotiation between countries of the region. China respects the sovereignty and sovereign rights of Arctic countries, and hopes that they can collaborate with each

other and peacefully resolve their disputes over territory and sovereignty (Jian 2012a).

This reflects what Jakobson and Peng describe as the more "subdued" public messaging from Chinese Arctic scholars since 2011, which also fits with China's "preoccupation with staunchly defending its perceived rights in the South and East China seas" (2012 v-vi; 15-16). Similarly, as countries with extraneous baseline claims, Japan and South Korea are unlikely to criticize Canada's Arctic baselines. With regard to the status of the waters of the NWP, Canada may have more to fear from South Korean and Japanese perspectives than from those of the Chinese (Bateman and Schofield 2008).

Securing International Recognition for the Full Extent of Canada's Extended Continental Shelf

Canada has made significant investments to ensure that it "secures international recognition for the full extent of its continental shelf" in the Arctic (DFAIT 2010, 7). UNCLOS defines the rights and responsibilities of states in using the oceans and lays out a process for determining maritime boundaries. Littoral countries are therefore mapping the Arctic to determine the extent of their claims. Canada ratified UNCLOS in November 2003 and has until December 2013 to submit evidence of its extended continental shelf claim beyond the existing 200-nautical-mile exclusive economic zone. To this end, the 2004 federal budget announced CDN$69 million for seabed surveying and mapping to establish the outer limits of Canada's continental shelves in the Arctic and Atlantic oceans. In 2007, the Canadian government allocated another CDN$20 million to complete the mapping of its shelf to meet the deadline, and DFAIT officials are confident that it will submit its claims on schedule (Standing Senate Committee on Fisheries and Oceans [SSCFO] 2008, 13). Where Canada has overlapping claims with its Arctic neighbours, it has promised to sort these out diplomatically. The other Arctic states made a similar pledge in the May 2008 Ilulissat Declaration.

No East Asian state has a claim to the Arctic shelf. Therefore, suspicions of territorial revisionism by China do not stand up to scrutiny. There is little evidence that Chinese leaders are considering claiming Arctic space. Alarmists point to Rear Admiral Yin Zhou's assertion in March 2010 that "the Arctic belongs to all the people around the world as no nation has sovereignty over it," as well as his comment that "China must play an indispensable role in Arctic exploration as we have one-fifth of the world's population" (quoted in Chang 2010). According to Gordon C. Chang, Yin said that "the current scramble for the sovereignty of the Arctic among some nations has encroached on many other countries' interests. Some commentators, including Chang saw this as China abandoning its cautious

approach to publicizing its Arctic views and "staking a claim" to the region in repudiation of the Arctic states' sovereignty (ibid.). Yin, however, was speaking in the context of China's broader maritime strategy and referring to the area in the central Arctic Ocean that is beyond national jurisdiction. International lawyer Aldo Chircop (2011, 14) notes that:

> China has spoken for the global commons in ways that no other major state has done in recent times. Clearly there is self-interest in reminding Arctic states that extended continental shelf claims, while permitted to coastal states under UNCLOS, should not trench on the international seabed area. In doing so, however, it is also playing the role of advocate for the common heritage of mankind and interests of developing countries, which no other Arctic state is doing. It has given itself a voice for developing countries. Considering its substantial official development assistance in all developing regions, this is a role which many developing countries are likely to endorse.

Chinese leaders are likely aware that to claim Arctic space, they would need to conquer an Arctic coastal state. Given the players involved, this would likely lead to nuclear war — obviously negating any benefits of territorial acquisition through conquest, which is also outlawed by the UN Charter.

Furthermore, superficial comparisons between China's interests and behaviour in the East and South China seas and in the Arctic basin fall short on various fronts. First, China's role and interests are different in both regions. While China has the interests of a maritime state in the Arctic, in East Asian seas, its posture is closer to that of a coastal state, reflecting concerns about foreign vessels conducting activities close to shore and provoking calls for thicker coastal state jurisdiction over maritime areas (Greenfield 1992). China bases its sovereignty claims to the South and East China seas on disputed features like the Diaoyu, Spratly and Paracel islands, on associated claims to maritime jurisdiction and on historic rights. China has no comparable footprint in the Arctic. Second, although much has been made of Chinese "assertiveness" in disputed maritime areas, China does not perceive its behaviour as assertive. Rather, Chinese analysts argue that China has reacted to provocations by rival claimants. For instance, tensions in 2012 over the Diaoyu islands emerged as a consequence of Japan's purchase of the islands from their private owner, a move Beijing decried as illegal and invalid on the basis that the islands are Chinese. Similarly, Chinese assertiveness in the South China Sea is a reaction to perceived efforts by claimants to violate China's claimed jurisdiction by exploring for resources and permitting fishing in disputed waters (Goldstein 2011). By contrast, China's concerns in the Arctic relate to the possibility that coastal states' claims to extended continental shelves may erode the size of the "Area" that is

beyond coastal state jurisdiction, but in which China has taken an active interest. This is hardly analogous to regional disputes in Asia, in which China has a stronger vested interest.

The Arctic presents an opportunity for Canada and other Arctic states to engage East Asian states on questions of global maritime governance. China, Japan and South Korea have submitted claims to an extended continental shelf in the East China Sea and the Pacific, as have Denmark, Russia and Canada. Problematically, the Commission on the Limits of the Continental Shelf has not ruled on aspects of these submissions, because each party has protested various aspects of the others' claims (UN 2013). Here, it seems that Canada, Denmark and Russia have an opportunity to set an example for East Asian states for resolving contested continental shelf claims.

Addressing Arctic Governance and Related Emerging Issues

Canada's sovereignty agenda also addresses Arctic governance and public safety issues (such as emergency response and search and rescue). The SCAFP notes that:

> Increasingly, the world is turning its attention northward, with many players far removed from the region itself seeking a role and in some cases calling into question the governance of the Arctic. While many of these players could have a contribution to make in the development of the North, Canada does not accept the premise that the Arctic requires a fundamentally new governance structure or legal framework. Nor does Canada accept that the Arctic nation states are unable to appropriately manage the North as it undergoes fundamental change. (DFAIT 2010, 8)

The statement reiterates that an extensive international legal framework applies to the Arctic Ocean, but that new challenges will emerge alongside increased shipping, tourism and economic development. Placing a clear priority on "regional solutions, supported by robust domestic legislation in Arctic states," Canada emphasizes collaboration with "other Arctic nations through the Arctic Council (the primary forum for collaboration among the eight Arctic states), with the five Arctic Ocean coastal states on issues of particular relevance to the Arctic Ocean, and bilaterally with key Arctic partners, particularly the United States" (ibid.).

Canada's official position indicates that it prefers a regional governance regime dominated by the Arctic states — a stance that may conflict with East Asian aspirations for a stake in regional governance. In response to the SCAFP, a *Toronto Star* (2010) editorial indicated that Ottawa "insists the Arctic Council eight are 'best placed to exercise leadership in the management of the region,' at a time when

China and others are showing interest in the North. At root, Ottawa seems to be pushing for Arctic issues to be sorted out by as few interested players as possible, while keeping the rest of the world at a distance." East Asian commentators, however, insist that the Arctic Ocean cannot be considered the private and exclusive preserve of the Arctic coastal states. For example, Chinese Assistant Minister of Foreign Affairs Hu Zhenyue stated in June 2009 that "Arctic countries should protect the balance between the interests of states with shorelines in the Arctic Ocean and the shared interests of the international community" (quoted in Campbell 2012, 3). Some Chinese commentators, such as Li Zhenfu of Dalian Maritime University and Guo Peiqing from the School of Law and Political Science at the Ocean University of China, urge China to adopt a proactive campaign to protect its rights. Other scholars preach restraint, suggesting that China should avoid provoking Arctic states by asserting views on topics such as resources and shipping. Indian political scientist Sanjay Chaturvedi (2012, 232) notes that "China's much pronounced official foreign policy stand on supporting state sovereignty in its classical-territorial sense could come in the way of articulating the vision of a more inclusive and democratic 'regional' (perhaps even global) governance for the circumpolar Arctic."

That East Asian commentators raise questions about the current Arctic governance regime and call for change should come as no surprise, given that Canadian commentators have raised serious questions about the capacity of existing arrangements to ensure regional security and stability. For example, Huebert (2009) suggests that the soft-law approach currently in place will prove ineffective in managing challenges related to climate change, resource development and increased shipping in the region. He has advocated strong regional institutions with legal powers and even an ambitious new Arctic treaty architecture modeled on the Antarctic Treaty — in obvious opposition to the Ilulissat Declaration (ibid.). Other Western commentators have avoided the treaty road while still suggesting that the current regime needs fundamental reform. The Arctic Governance Project — whose nine-member steering committee included Udloriak Hanson (then a policy analyst with Nunavut Tunngavik Incorporated) and former Yukon premier Tony Penikett — issued a report in April 2010 that declared the Arctic Council needed a "big makeover" because it had become outdated, owing to "cascades of change" in the region (Arctic Governance Project 2010). Although it did not envisage an Arctic Council with regulatory powers, the project team did recommend that the Council expand its mandate and open its doors to more non-Arctic observers, including China (ibid.).

Much of the attention (and criticism) about Arctic governance over the last decade has been directed at the Arctic Council. Established in 1996 as a regional forum for circumpolar cooperation by the eight Arctic states, the council includes representatives from indigenous organizations (permanent participants) and

observers from non-Arctic states, intergovernmental and interparliamentary organizations, and non-governmental organizations. Efforts to increase the council's efficiency and effectiveness have not resolved all the issues (eg. Koivurova and Molenaar 2009), and questions abound about its representativeness given rising global awareness of, and interests in, the region. Although the Arctic member states extended "permanent" observer status to China, Japan and South Korea (among other non-Arctic states and organizations) in May 2013, balancing the expectations of Council observers, Arctic member states and permanent participants remains a challenge.

Canadian commentaries on East Asian interest in the Arctic Council deal almost exclusively with China. Our research indicates that the suggestion that China seeks to dominate the Arctic Council is flawed. Such an assessment is inconsistent with China's track record of behaviour in international institutions and with the nature of the council itself, given that it is clearly set up to privilege the Arctic member states and the permanent participants (Manicom and Lackenbauer 2013a; 2013b, 12–15).While most Chinese commentators and officials acknowledge that "Arctic countries, with a larger stake in Arctic-related issues, should play a more important role in Arctic affairs,"[2] this does not preclude East Asian states from taking a more active role in circumpolar governance. Given that China's official discourse now emphasizes support for the sovereignty and "legitimate" sovereign rights of Arctic states and observes that "Arctic cooperation has become more and more institutionalized and mature," Canada should view broader participation in the Council as an opportunity to educate East Asian states on Arctic issues and enmesh them in the emerging regime (*Nunatsiaq News* 2013).

Creating Appropriate International Conditions for Sustainable Development

Other dimensions of the SCAFP reflect the interaction between domestic and international agendas in Canada's Northern strategy. Resource development — one of the primary catalysts for the surge in Arctic interest over the previous decade — is upheld as a main conduit to "unleashing the true potential of Canada's North" by "creating a dynamic, sustainable Northern economy and improving the social well-being of Northerners" (DFAIT 2010). On a general level, this requires a framework of international cooperation in the Arctic region: it is unlikely that Canada can create "appropriate international conditions for sustainable development" in a region beset with intense competition and conflict.

[2] Chinese presentation to the Second Sino-Canadian Exchange on the Arctic, Halifax, June 25–26 2012; identity withheld according to Chatham House rules.

The resource potential of the Arctic is huge. The Mackenzie region is estimated to hold upwards of 2.8 billion barrels of crude oil reserves and more than 60 trillion cubic feet of natural gas (Centre for Energy 2013). Further east, the Geological Survey of Canada estimates that the Sverdrup basin contains 4.3 billion barrels of oil and 79.8 trillion cubic feet of gas (Chandler 2008). Potentially exploitable minerals in the Canadian Arctic include iron ore, base metals and diamonds. Interest in Northern fisheries, tourism and freshwater may expand as global warming opens up easier access to the region. As a result, the notion that this treasure-laden frontier may hold the key to Canada's future prosperity has fired up the popular mind. Northern Canadians are excited by the opportunities offered by resource development. Concerns abound, however, about how Canada will facilitate development while protecting the ecosystem and sustaining communities and cultures.

Most attention relates to oil and gas development, given Canada's self-designation as an emerging clean energy superpower and the rising energy demands of Asian countries. Despite popular fears of a Chinese resource grab in the Arctic (and concomitant environmental impacts), this anxiety is irrational. Commercially viable Arctic hydrocarbon resources are either onshore or in waters well within national jurisdiction — a fact that most East Asian commentators acknowledge. Foreign participation will thus occur under Canadian law and at the pleasure of the Canadian government. Although China's record in other parts of the world suggests that it will prioritize resource development over environmental protection in polar regions as well (Brady 2012, 15), robust Canadian regulations and safeguards designed to avoid a Deepwater Horizon-type blowout should mitigate against rogue behaviour. China will also have a harder time moving into the Arctic than it has in acquiring its position in the oil sands: while it possesses the necessary capital, it lacks the experience and technological sophistication to develop unconventional oil reserves. In the Arctic, Chinese companies will be unable to proceed without Western technological support (Lasserre 2010, 7).

Some industry experts remain skeptical that international excitement over undiscovered oil and gas will translate into actual large-scale offshore development in the Canadian Arctic (Lindholt and Glomsrød 2012). Arctic operations are extremely expensive and Western oil companies currently operating in the region may welcome a Chinese partner to share the costs and risks. On the downside, Canadian Arctic reserves have not yet been proven economically viable, and bringing them into production will take at least a decade. They may also fall prey to the sort of regulatory hurdles which plagued the Mackenzie Valley Pipeline, which Devon Energy experienced when working in the Canadian Beaufort, or which Shell and other oil companies have experienced working in Alaska (Voutier et al. 2008, 105, and Nelson 2010). Although East Asian states and companies will continue to monitor developments in the North American Arctic, initial industry moves suggest

that their direct activities (at least short-term) will concentrate on parts of the world where reserves are closer to production.

Another area of emphasis related to "sustainable development" relates to Arctic shipping. East Asian interests in Arctic transit routes are an extension of broad trade concerns and the emergence of new polar shipping routes — either through the NWP, the Northern Sea Route (NSR) or even across the Arctic Ocean — will attract significant attention (Hong 2012). Repeating the findings of the Arctic Marine Shipping Assessment, however, Canada does not anticipate that the NWP will emerge as a viable, large-scale transit route in "the near term," given navigational challenges posed by unpredictable ice conditions. Accordingly, "other routes are likely to be more commercially viable" for the foreseeable future (DFAIT 2010; Arctic Council 2009). For example, South Korea's Ambassador to Norway, Byong-hyun Lee, explained in January 2013 that his country's particular interest "is in the [NSR] as an alternate shipping route between Asia and western Europe." He also notes that "the coming era of the Arctic seaway...also requires international cooperation to address technical and environment related matters in the Arctic Ocean" (quoted in *Nunatsiaq News* 2013).[3]

Canada's Arctic strategy also places high importance on the development of a mandatory polar code for shipping through the International Maritime Organization in recognition that the future governance of Arctic shipping will require an internationalist approach. While Arctic states have the right to exercise jurisdiction within their internal and territorial waters, their control does not extend into the polar basin (Smith and Stephenson 2013). It is clearly in Canada's interest to see uniform shipping standards for the region, given that it has spent more than two decades spearheading a group of countries, classification societies and industry experts that seek to implement a harmonious set of rules for the construction and operation of ships transiting ice-covered waters. These efforts have borne fruit in the *Guidelines for Ships Operating in Arctic Ice-Covered Waters,* which were adopted in 2002 and updated to become the *Guidelines for Ships Operating in Polar Waters* in 2009. Canada and other Arctic states are now working to transform these guidelines into a mandatory polar code that will address certification, design, equipment systems, operations, environmental protection and training, providing an added layer of environmental protection and safety in the Arctic waters (Kikkert 2012, 319; 330).

Vessels bearing flags from around the world might eventually ply the Arctic waters, making international acceptance key to the implementation of a polar code. As major trading nations and ship builders, East Asian states' adherence will be integral to success. Providing that Asian shipping is not discriminated against or

[3] For a similar perspective from Japan, see Tonami and Watters (2012).

denied access to emerging sea routes without reasonable grounds, Asian interests are likely to accept international standards for vessels that embody a global approach to safety.

Seeking Trade and Investment Opportunities that Benefit Northerners and All Canadians

In its narrative of a more prosperous North, the Canadian government emphasizes wealth and job creation through resource development. This will require foreign investment. Accordingly, Canada's official strategy promises to "seek trade and investment opportunities that benefit Northerners and all Canadians," particularly through enhanced ties with other Arctic states (DFAIT 2010). The government anticipates that "Northern commercial relationships can serve as conduits to expand trade and investment relations not only with our immediate Northern neighbours but also with other states such as those in central Asia and Eastern Europe" (ibid.).

Details are scant about how this might play out in practical terms. Asia is already the primary market for the growing Pangnirtung turbot fishery, bringing about CDN$400,000 to the local economy, with most product going directly to China (Vela 2013; Nobel 2012a).China is now Canada's second-largest trading partner (CDN$58 billion in 2010) after the United States. Although China's ambassador Zhang Junsai (2012) recently stated that "Canada should export much more to China other than wood, pulp, mineral resources" — particularly high-tech goods that cater to China's growing consumer class— it is likely that the North will continue to be a source of resources rather than industrial products. China wishes to enhance its cooperation in the energy and resource sectors, and state-owned Chinese companies have already invested billions of dollars in Alberta's oil sands. Chinese markets are also the driving force behind the proposed Northern Gateway pipeline currently under review by the National Energy Board, and tie into nascent proposals for an Arctic Gateway project (Moore 2012; PPM Public Policy Management 2010). Some industry experts are skeptical, however, that international excitement over undiscovered oil and gas in the Arctic will translate into large-scale offshore development in the Canadian Arctic (eg. Lindholt and Glomsrød 2012).

Mining is another story. Economist Patricia Moore, a commodity specialist with Scotiabank, told the Nunavut Mining Symposium in April 2011 that she saw "no end" to the "tsunami" of Chinese money flowing into Canada's energy and mining sectors, with mining companies around the world "eyeing Nunavut with far more interest than before" (quoted in George 2011). MMG Limited, an Australian company that is 75 percent owned by Chinese state enterprise China Minmetals Corporation, plans two mines in Nunavut and several joint ventures between the

Wuhan Iron and Steel (Group) Corporation and Century Iron Mines Corporation in northern Quebec. In Yukon, Yunnan Chihong Zinc & Germanium Co. Ltd. is involved in a joint venture proposal with Selwyn Resources to develop a lead and zinc project, and Jinduicheng Molybdenum Group Co. Ltd. and Northwest Nonferrous International Investment Company Ltd.'s Wolverine zinc and silver mine is already in operation. In the Raglan district in northern Quebec, Goldbrook Ventures Inc. has partnered with Jilin Jien Nickel Industry Co. to develop its nickel property in Nunavik (Munson 2012; George 2012). If resource prices remain high, mining companies from around the world — including Asia — will likely see opportunity in the Canadian North and will invest accordingly.

A final concern relates to Asian resource diplomacy and the effect it could have on Canadian governance. Chinese resource deals in the developing world have been characterized by the exchange of state aid dollars for exclusive access to resource production. These terms make Chinese national oil company (NOC) investment more appealing than that from international oil companies or from Western NOCs that do not engage in this kind of behaviour. Despite considerable infrastructure challenges in the North, however, there is reason to believe that Chinese investment will not include instruments of Chinese state power because of the strong rule of law in Canada. Accordingly, there is little chance that the negative side effects of Chinese resource investment found in Africa and other developing countries, including job loss due to labour disruption and associated social unrest due to growing resentment, will be repeated in a Canadian context (eg. George 2011).

The Circumpolar Inuit Declaration on Resource Development Principles in Inuit Nunaat, signed in May 2011, lays out conditions for sustainable development (Inuit Circumpolar Council 2011). Invoking the United Nations Declaration on the Rights of Indigenous Peoples and the Circumpolar Inuit Declaration on Sovereignty in the Arctic, the statement also emphasizes that "Inuit must be active and equal partners in policy-making and decision-making affecting Inuit Nunaat" (ibid.). Mary Simon, then president of Inuit Tapiriit Kanatami (ITK), put "the world...on notice that while Inuit look forward to new forms and levels of economic development, the use of resources in the Arctic must be conducted in a sustainable and environmentally responsible way, and must deliver direct and substantial benefits to Inuit" (Indian Country Today Media Network [ICTMN] 2011). The declaration recognizes the importance of resource development, but it stresses that it must happen "at a rate sufficient to provide durable and diversified economic growth, but constrained enough to forestall environmental degradation and an overwhelming influx of outside labour" (Inuit Circumpolar Council 2011). This may have an impact on the form and pace of development in Canada, given the shortage of skilled labour in the northern territories to fill the positions required in large-scale mining or oil and gas projects. Furthermore, in the declaration Inuit insist that "all resource development must contribute actively and significantly to

improving Inuit living standards and social conditions, and non-renewable resource development, in particular, must promote economic diversification through contributions to education and other forms of social development, physical infrastructure, and non-extractive industries" (ibid.). The declaration states that "Inuit welcome the opportunity to work in full partnership with resource developers, governments and local communities in the sustainable development of resources of Inuit Nunaat, including related policy making, to the long-lasting benefit of Inuit and with respect for baseline environmental and social responsibilities" (ibid.). The details of impact benefit agreements reached between Inuit groups and companies are not public, but these will be key mechanisms to ensuring that regional and local needs are addressed.

Supporting International Efforts to Address Climate Change in the Arctic

Al Gore's "inconvenient truth" rhetoric, Inuit activist Sheila Watt-Cloutier's passionate appeals and the Arctic Council's landmark Arctic Climate Impact Assessment report all served to catapult the Arctic to popular attention as the bellwether of global climate change. Although critics lament Canada's dismal track record on climate change,[4] the SCAFP insists that "Canada recognizes that climate change is a global challenge requiring a global solution" (DFAIT 2010). Canada's climate change strategy must be global in its aspirations for mitigation, while sensitive to the needs for local adaptation. It must contain on-the-ground capacity to monitor the physical, social, cultural and economic impacts of global warming in the Canadian Arctic, and support similar studies abroad.

East Asian states cite climate change as the key reason that the Arctic must be treated as an international space, given its impact on global processes. Joshua Ho (2011), a senior fellow at Nanyang Technological University in Singapore, notes that Asia is the most vulnerable continent to changing precipitation patterns, rising sea levels and extreme weather events. Ho cites another analysis, conducted by the Tyndall Centre for Climate Change Research at Oxford, which estimates that an increase of one metre in sea level by the end of this century will displace more than 100 million people and flood more than 900,000 km^2 of land in Asia. This will affect cities in China such as Guangzhou, Shanghai, Tianjin and Ningbo (ibid.). In this light, it is clear that Asian countries would want to take an active role in polar research, conduct Arctic studies and increase their involvement in international institutions and conferences (Campbell 2012, 3). According to the Intergovernmental Panel on Climate Change, increased flooding and the

[4] See, for example, Burck, Herwille and Krings (2013), which ranks Canada worst of all Western countries and 58 of 61 countries surveyed.

degradation of freshwater, fisheries and other resources will impact hundreds of millions of people (Chaturvedi 2012). Studies also indicate that the Arctic air stream generates extreme weather in China (Alexeeva and Lasserre 2012, 83).

Viewed through the lens of official statements, China's top two Arctic priorities are climate change and associated scientific research efforts. The Chinese publicly acknowledges climate change and concomitant consequences: sea level rise caused by the melting polar ice cap will affect China's coastline, displace millions of people and wreak untold economic damage and environmental disaster (Yang 2012). Furthermore, Jakobson and Peng (2012, 16) observe that Chinese commentators now prioritize climate change in their public agenda to generate a "new public narrative" designed to "circumvent the sensitivity of Arctic resources and sovereignty issues, and to calm outsiders' jitters about China as a rising power. Climate change cooperation provides China with opportunities to partner with other states on the Arctic agenda."

South Korean Ambassador Lee also explained that his country sought permanent observer status to the Arctic Council pursuant to its commitment to fight climate change. Citing climate change as a "threat to humanity," he insisted that the Arctic needs a new model for development and envisaged Korea's interest in the region as aligned with "its endeavour towards global green growth" (quoted in *Nunatsiaq News* 2013). Given that international solutions to global warming demand buy in from industrialized and industrializing countries, including the major East Asian states, there is an obvious congruence between Asian and Arctic state interests in this respect — although practical solutions and common ground are more elusive.[5]

Strengthening Arctic Science and the Legacy of the International Polar Year

Science forms an important foundation for *Canada's Northern Strategy* across all four pillars and informs sound policy making. Canada's world-leading CDN$150 million investment in the International Polar Year (2007–2009) provided momentum for a new national commitment to excellence in Arctic research (Struzik 2007; 2009). Furthermore, Arctic research initiatives emphasize Canada's international obligation to contribute to knowledge about the "nature, mechanisms and extent" of connections between the Arctic and the rest of the globe (Council of

[5] Canada and other Arctic states will benefit from the support of East Asian states when addressing other pressing environmental issues through international standards, such as efforts to reduce mercury contamination. See Arctic Monitoring Assessment Programme (AMAP) Assessment (2011). On the human impacts, see Nobel (2012b).

Canadian Academies 2008, 4). In 2007, as a signature deliverable of its strategy, the Canadian government committed to establish a new world-class Arctic research station. Slated to open in 2017, the Canadian High Arctic Research Station (CHARS) will be based in Cambridge Bay, Nunavut, serving as a science and technology hub in Canada's North, anchoring the existing network of scientific facilities across the region. Although CHARS is mandated to focus on national priorities aligned with the *Northern Strategy*, its solutions-driven programming is geared towards encouraging Canada to be innovative and to attract other countries to collaborate on our priorities (Government of Canada 2013b). This represents a significant national investment. On August 23, 2012, Stephen Harper committed CDN$142.4 million over six years for the construction, equipment and outfitting of CHARS, CDN$46.2 million over six years for the CHARS science and technology program and CDN$26.5 million per year for the ongoing operation of the station starting in 2018-2019.

Rather than succumbing to media rhetoric about Canada's need to match East Asian states in a "polar icebreaker race" or accepting unfounded claims that China is outpacing its spending on Arctic research, Canada should shake its insecurity complex in the scientific domain (Ibbitson 2010). The federal government spent approximately CDN$152 million on Arctic science and technology in 2007-2008, made the largest national contribution to International Polar Year (2007-2008), has invested CDN$85 million through its Arctic research infrastructure fund and invested more than CDN$113 million in the Network of Centres of Excellence ArcticNet program. Furthermore, the "impact factor" of Canadian Arctic scientific research is second only to that of the United States and is far higher than Asian research (Côté and Picard-Aitken 2009).

As a leader in Arctic science, Canada should pursue opportunities for enhanced research collaboration with East Asian scientists. Korea and China each spend about CDN$60 million annually on polar research, and both have made heavy investments in icebreakers and research stations over the last decade. The Japanese government also "believes Japan can contribute to the sustainable development of the Arctic by providing scientific knowledge," Aki Tonami and Stewart Watters (2012) note. Without a physical footprint in the region, "it is critical for Japan to engage in international research and development in cooperation with littoral states to secure interests in the future" (ibid., 100). All three countries have established records in polar research and are members of the International Arctic Science Committee.

Science can serve as a conduit for international collaboration, influence and confidence building. Liu Huirong of the Oceanic University of China argues that an ongoing focus on climate change offers China the best opportunity for constructive engagement on Arctic issues, serving as a conduit to raise issues related to

biodiversity, shipping, fishery management, and indigenous rights (quoted in Jakobson and Peng 2012, 16). According to Karen Litfin, the complexity of local–global linkages, "the problematic nature of sovereignty as a framework for addressing problems of global ecology," and the critical role of science in informing debates related to "planetary politics" make this an appropriate and shrewd approach for East Asian states to pursue (quoted in Chaturvedi 2012, 245). Chinese officials have indicated their country's desire to elevate track-two dialogues between academics on Arctic issues to track-one discussions, likely to seek a research agreement akin to China's with Iceland and Canada's with the United Kingdom (Jian 2012b). Zhang Junsai, China's ambassador to Canada, has stated explicitly that China hopes to form an Arctic scientific research team with Canada (Moore 2012).

Encouraging a Greater Understanding of the Human Dimension of the Arctic and Supporting Indigenous Permanent Participant Organizations

Canada is committed to "encourag[ing] a greater understanding of the human dimension of the Arctic to improve the lives of Northerners, particularly through the Arctic Council" and the Sustainable Development Working Group. Despite official assurances that the core of *Canada's Northern Strategy* is first and foremost about people, Northern indigenous groups have expressed concerns about their involvement in national and international decision making. Inuit representatives, for example, have suggested that the Canadian government agenda prioritizes investments in defence and resource development at the expense of environmental protection and improved social and economic conditions. They insist that sovereignty begins at home and that the primary challenges are domestic human security issues, requiring investments in infrastructure, education and health care.

Indigenous voices add to the complexity of the Canadian message projected to the rest of the world.[6] The Inuit Circumpolar Council (2011) emphasizes that "the inextricable linkages between issues of sovereignty and sovereign rights in the Arctic and Inuit self-determination and other rights require states to accept the presence and role of Inuit as partners in the conduct of international relations in the Arctic."

[6] See, for example, Inuit Qaujisarvingat (2013). The Inuit Circumpolar Council (2011) emphasizes that "the inextricable linkages between issues of sovereignty and sovereign rights in the Arctic and Inuit self-determination and other rights require states to accept the presence and role of Inuit as partners in the conduct of international relations in the Arctic." The declaration envisions the Inuit playing an active role in all deliberations on environmental security, sustainable development, militarization, shipping, and socio-economic development.

The declaration envisions the Inuit playing an active role in all deliberations on environmental security, sustainable development, militarization, shipping and socio-economic development. Senior officials, including Leona Aglukkaq, Canada's minister for the Arctic Council, insist that this is the government's foremost priority.

Some Canadian commentators have expressed concern that Asian decision makers do not have a well-developed understanding of the Arctic as a homeland as opposed to a resource or scientific frontier. Some cited this lack of knowledge as a justification to deny the applications of China and other Asian states for observer status to the Arctic Council. The opposite argument is also sustainable — and arguably more advantageous to Canadian interests. In its role as chair of the Arctic Council from 2013–2015, Canada can demonstrate leadership by envisaging the Council as a tool not only for inter-Arctic dialogue but for international education more generally.

In 2009, Kikkert noted concern amongst the Arctic Council's permanent participants that "if more actors continue to gain access to the Council, the organization will begin to lose its specialized status and regional identity to the harm of the indigenous peoples and circumpolar states" (8). Although some Inuit representatives have downplayed the prevalence of this fear, the SCAFP insists that "as interest by non-Arctic players in the work of the Council grows, [it] will work to ensure that the central role of the Permanent Participants is not diminished or diluted" (DFAIT 2010). Aglukkaq has also emphasized a "people-first" approach, indicating that the criteria for evaluating new observers must incorporate "the respect and support of indigenous peoples in the Arctic region" (quoted in Bell 2012).

East Asian officials insist that their countries have this respect and wish to learn more about how to support Aboriginal development efforts. In Chinese Ambassador to Norway Zhao Jun's words, China "respects the values, interests, culture and traditions of Arctic indigenous peoples and other Arctic inhabitants" and is open to exploring avenues for cooperation with northern peoples (quoted in *Nunatsiaq News* 2013). Similarly, Japan and South Korea have expressed a willingness to engage Northern indigenous groups. According to Shuji Kira (2012), "as regards the respect for values, interests, culture, and tradition of Arctic indigenous peoples, Japan is determined and eligible to address this matter in an appropriate way, based upon our own experiences with indigenous people living in Japan." Likewise, Korean researchers emphasize their track record of participation in the Arctic Council's Sustainable Development Working Group (Manicom, personal interview with researcher at the Korean Polar Research Institute, Seoul, December 4, 2012). Some Canadian indigenous leaders, however, seem unconvinced that this is more than lip service. Terry Audla, president of ITK, warned an Ottawa conference in

late January 2013 that the Arctic Council should be cautious about opening up observer status to applicants such as China that did not have a strong track record of respecting indigenous rights. This poses a dilemma to Inuit, Audla explained. Although their culture embraces dialogue and negotiation, "the council runs the risk of seeing its agenda being diluted or sidetracked by special interests" (quoted in Gregoire 2013).

Inuit insist that they have rights rooted in indigenous use and occupancy, international law, land claims and self-government processes (Koivurova 2010). They and other Northerners place a high policy priority on "recognition that an effective Arctic strategy requires a high and sustained level of inter-governmental and government-aboriginal cooperation" (ITK 2008, 12). For example, the Inuit Circumpolar Council (2011) adopted a sovereignty declaration emphasizing "the inextricable linkages between issues of sovereignty and sovereign rights in the Arctic and Inuit self-determination and other rights require states to accept the presence and role of Inuit as partners in the conduct of international relations in the Arctic." The declaration envisages the Inuit playing an active role in all deliberations on environmental security, sustainable development, militarization, commercial fishing, shipping, health and socio-economic development (ibid.). In asserting that "the foundation, projection and enjoyment of Arctic sovereignty and sovereign rights all require healthy and sustainable communities in the Arctic," the declaration stipulates that:

> In the pursuit of economic opportunities in a warming Arctic, states must act so as to: (1) put economic activity on a sustainable footing; (2) avoid harmful resource exploitation; (3) achieve standards of living for Inuit that meet national and international norms and minimums; and (4) deflect sudden and far-reaching demographic shifts that would overwhelm and marginalize indigenous peoples where we are rooted and have endured. (ibid.)

How East Asian scholars or officials perceive this declaration is unknown. Given recent indications that Canadian Inuit will use their legal rights recognized in land claims to disrupt resource exploration activities that they believe are prejudicial to their interests, and will sue the Canadian federal government for not implementing land claim provisions, it is probable that Inuit will hold the government responsible for protecting their interests. In August 2010, for example, the Qikiqtani Inuit Association secured an injunction to halt seismic testing in Lancaster Sound on the grounds that this activity could affect whales, polar bears and other marine life and change migration patterns (CBC News 2010). In December 2006, Nunavut Tunngavik Incorporated filed a CDN$1 billion lawsuit against the Government of Canada for breach of contract, arguing that Canada "is not living up to its implementation responsibilities and is therefore violating the Nunavut Land Claims

Agreement (NLCA)" and "keeps Inuit dependent and in a state of financial and emotional despair despite promises made when the NLCA was signed in 1993" (NTI 2006).

Conclusions: Messages Canada Should Send to Asian States

> Through our Arctic foreign policy, we will deliver on the international dimension of our *Northern Strategy*. We will show leadership in demonstrating responsible stewardship while we build a region responsive to Canadian interests and values, secure in the knowledge that the North is our home and our destiny.
>
> Through our Arctic foreign policy, we are also sending a clear message: Canada is in control of its Arctic lands and waters and takes its stewardship role and responsibilities seriously. Canada continues to stand up for its interests in the Arctic. When positions or actions are taken by others that affect our national interests, undermine the cooperative relationships we have built, or demonstrate a lack of sensitivity to the interests or perspectives of Arctic peoples or states, we respond.
>
> Cooperation, diplomacy and respect for international law have always been Canada's preferred approach in the Arctic. At the same time, we will never waver in our commitment to protect our North. (DFAIT 2010)

This strongly worded conclusion to the *Statement on Canada's Arctic Foreign Policy* summarizes the country's goals and emphasizes its commitment to stand up for national and regional interests. With this in mind, Canadian leaders can support this cooperative and diplomatic strategy by communicating the following messages of inclusion, responsibility and respect to East Asian states:

- Canada respects international law. The country intends to delineate its extended continental shelf to the extent prescribed under UNCLOS. The Arctic Ocean *is* an ocean, and it is misguided for commentators to suggest that the sovereign rights accorded to coastal states everywhere else in the world should be denied to coastal states in the Arctic.
- Canada has no intention of dividing up the Arctic with the other Arctic coastal states and shutting out non-Arctic interests. Canada recognizes user state rights to the seas beyond national jurisdiction in the Arctic Ocean. Prime Minister Harper (2006) has already stated that Canada does not intend to invoke any "sector principle" claiming jurisdiction seabed up to the North Pole. At the same time, Canada expects East

Asian states to play a constructive role in the development of robust international standards to activities occurring in Arctic waters (Byers 2009).

- Canada welcomes Asian investment that will contribute to the exploration and exploitation of Arctic resources within Canada's jurisdiction. As the *Northern Strategy* emphasizes, Northerners must be the primary beneficiaries of this development. Simultaneously, Canada expects East Asian companies to act in accordance with domestic laws of Arctic states and international standards set out in the Arctic Council and elsewhere. These include special provisions for environmental protection given unique Arctic ecosystems.
- Canada should reiterate the findings of the 2009 Arctic Marine Shipping Assessment that the NWP is unlikely to become a viable, large-scale transit route in the near term. Canada will, however, continue to work with other states to develop a mandatory polar code that enhances Arctic marine safety and protects Arctic peoples and the environment.
- The general principle of respect for Northerners, including indigenous people of the Arctic, is foremost in Canada's national mindset. Anyone wishing to partner with Canada must be prepared to adhere to this philosophy and priority.

"The key foundation for any [international] collaboration will be acceptance of and respect for the perspectives and knowledge of Northerners and Arctic states' sovereignty," the Canadian government asserts in the SCAFP (DFAIT 2010). "As well, there must be recognition that the Arctic states remain best placed to exercise leadership in the management of the region" (ibid.). Leadership does not require exclusion, however, and Canada and the other Arctic states were wise to accept East Asian states' applications for observer status to the Arctic Council. Merely inviting them to observe proceedings at the Council, however, is insufficient. Instead, Canada should develop a clear message that clarifies its Arctic agenda, indicates opportunities for cooperation and collaboration in science and economic development, and corrects misconceptions about Canada's position on sovereignty and sovereign rights in the Arctic.

References

Alexeeva, Olga and Frédéric Lasserre. 2012. "China & the Arctic," *Arctic Yearbook 2012*. ww.arcticyearbook.com/images/Articles_2012/Alexeeva_and_Lassere.pdf.

AMAP. 2011. *AMAP Assessment 2011: Mercury in the Arctic*. www.amap.no/documents/doc/AMAP-Assessment-2011-Mercury-in-the-Arctic/90.

Arctic Council. 2009. *Arctic Marine Shipping Assessment 2009 Report*. Arctic Council Protection of the Arctic Marine Environment Working Group. www.pame.is/images/stories/AMSA_2009_Report/AMSA_2009_Report_2nd_print.pdf.

Arctic Governance Project. 2010. "Arctic Governance in an Era of Transformative Change: Critical Questions, Governance Principles, Ways Forward." The Arctic Governance Project, April. www.arcticgovernance.org/getfile.php/1219555.1529.wyaufxvxuc/AGP+Report+April+14+2010%5B1%5D.pdf.

Asia Pacific Foundation of Canada. 2012. *2012 National Opinion Poll: Canadian Views on Asia*. Asia Pacific Foundation of Canada, April. www.asiapacific.ca/sites/default/files/nop_2012_april25.pdf.

Bateman, Sam and Clive Schofield. 2008. "State Practice Regarding Straight Baselines in East Asia: Legal, Technical and Political Issues in a Changing World." Speech given at the Conference on Difficulties Implementing the Provisions of UNCLOS, Monaco, October 16.

Bell, Jim. 2012. "Aglukkaq Stresses 'People-first' Approach to Arctic Council." *Nunatsiaq News*, October 29.

Borgerson, Scott G. 2008. "Arctic Meltdown: The Economic and Security Implications of Global Warming." *Foreign Affairs* March/April: 63–77.

Boswell, Randy. 2010. "China Moves to Become Major Arctic Player." *Nunatsiaq News*, March 3.

Brady, Anne-Marie. 2012. "Polar Stakes: China's Polar Activities as a Benchmark for Intentions." *China Brief* 12/14.

Burck, Jan, Lukas Herwille and Laura Krings. 2013. *Climate Change Performance Index 2013*. Bonn: Germanwatch and Climate Action Network Europe.

Byers, Michael. 2009. *Who Owns the Arctic?* Vancouver: Douglas & McIntyre.

Calgary Herald. 2007. "China's Navy Making Waves." *Calgary Herald*, October 1.

Campbell, Caitlin. 2012. "China and the Arctic: Objectives and Obstacles." US-China Economic and Security Review Commission Staff Research Report, April.

Cannon, Lawrence. 2009. "Notes for an Address by the Honourable Lawrence Cannon, Minister of Foreign Affairs, on Canada's Arctic Foreign Policy."

Whitehorse, March 11. www.international.gc.ca/media/aff/speeches-discours/2009/386933.aspx?lang=en.

CBC News. 2009. "Canada Unveils Arctic Strategy." CBC News, July 26. www.cbc.ca/m/touch/canada/story/1.820074.

———. 2010. "Inuit Win Injunction on Seismic Testing." CBC News, August 10. www.cbc.ca/news/canada/inuit-win-injunction-on-seismic-testing-1.888294.

Centre for Energy. 2013. "Northwest Territories — Statistics." Centre for Energy Facts & Statistics. www.centreforenergy.ca/FactsStats/statistics.asp?template=5,13.

Chandler, Graham. 2008. "Really Stranded Gas." Up Here Business blog, June. http://gchandler.ehclients.com/index.php/graham/uphere2/really_stranded_gas/

Chang, Gordon G. 2010. "China's Arctic Play." *The Diplomat*, March 9. http://thediplomat.com/2010/03/09/china%E2%80%99s-arctic-play/?all=true.

Chaturvedi, Sanjay. 2012. "Geopolitical Transformations: 'Rising' Asia and the Future of the Arctic Council." In *The Arctic Council: Its Place in the Future of Arctic Governance*, edited by Thomas S. Axworthy, Timo Koivurova and Waliul Hasanat. Toronto: Munk-Gordon Arctic Security Program and the University of Lapland.

Chen, Gang. 2012. "China's Emerging Arctic Strategy." *Polar Journal* 2 (2): 358–371. doi:10.1080/2154896X.2012.735039.

Chircop, Aldo. 2011. "The Emergence of China as a Polar-Capable State." *Canadian Naval Review* 7 (1).

Christensen, Kyle D. 2010. "China in the Arctic: Potential Developments Impacting China's Activities in an Ice-Free Arctic." Presented at the On Track Conference of Defence Associations Institute, November.

Coates, Ken, Whitney Lackenbauer, Bill Morrison and Greg Poelzer. 2008. *Arctic Front: Defending Canada in the Far North*. Toronto: Thomas Allen & Son.

Côté, Grégoire and Michelle Picard-Aitken. 2009. *Arctic Research in Canada: A Bibliometric Analysis.* Science-Metrix report to Indian and Northern Affairs Canada. http://www.science-metrix.com/pdf/SM_INAC_Bibliometrics_Arctic_Research.pdf.

Council of Canadian Academies. 2008. *Vision for the Canadian Arctic Research Initiative: Assessing the Opportunities*.

Department of Foreign Affairs and International Trade (DFAIT). 2000. *The Northern Dimension of Canada's Foreign Policy*. http://dfait-aeci.canadiana.ca/view/ooe.b3651149E/5?r=0&s=1.

———. 2005. *Canada's International Policy Statement: A Role of Pride and Influence in the World*. http://publications.gc.ca/site/eng/274692/publication.html.

———. 2010. *Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad*. www.international.gc.ca/arctic-arctique/assets/pdfs/canada_arctic_foreign_policy-eng.pdf.

Dodds, Klaus. 2011. "We are a Northern Country: Stephen Harper and the Canadian Arctic." *Polar Record* 47 (4): 371–374.

Ekos Research. 2011. *Rethinking the Top of the World: Arctic Security Public Opinion Survey*. Munk-Gordon Arctic Security Program, January. http://gordonfoundation.ca/publication/300.

Emmerson, Charles. 2010. *The Future History of the Arctic*. New York: Public Affairs.

George, Jane. 2011. "The Global Mining Industry Arrives in Nunavut." *Nunatsiaq News*, April 6.

———. 2012. "Canadian Royalties Aims to Start Shipments from Nunavik Nickel in 2013." *Nunatsiaq News*, November 28. www.nunatsiaqonline.ca/stories/article/65674canadian_royalties_aims_to_ship_ore_from_nunavik_nickel_in_2014.

Globe and Mail. 2006. "Harper speaks up for Canada's Arctic." *Globe and Mail*, January 28.

Goldstein, Lyle. 2011. "Chinese Naval Strategy in the South China Sea: An Abundance of Noise and Smoke, but Little Fire." *Contemporary Southeast Asia* 33 (3): 320–347.

Government of Canada. 1997. *Canada and the Circumpolar World: Meeting the Challenges of Cooperation into the Twenty-First Century*. Report of the House of Commons Standing Committee on Foreign Affairs and International Trade, April.

———. 2008. "Chapter 4: Leadership at Home." Budget 2008, Department of Finance Canada. www.budget.gc.ca/2008/plan/chap4a-eng.html.

———. 2009. *Canada's Northern Strategy: Our North, Our Heritage, Our Future*. Minister of Indian Affairs and Northern Development, July. www.northernstrategy.gc.ca/cns/cns.pdf.

———. 2013a. "Canada's Arctic Foreign Policy." Foreign Affairs, Trade and Development Canada. www.international.gc.ca/arctic-arctique/arctic_policy-canada-politique_arctique.aspx?lang=eng.

———. 2013b. "Canada High Arctic Research Station." Government of Canada Science website. www.science.gc.ca/default.asp?lang=En&n=74E65368-1.

Grant, Shelagh. 2010a. "Troubled Arctic Waters." *Globe and Mail*, June 30.

———. 2010b. *Polar Imperative: A History of Arctic Sovereignty in North America*. Vancouver: Douglas and McIntyre.

Greenfield, Jeanette. 1992. *China's Practice in the Law of the Sea.* Oxford: Clarendon Press.

Gregoire, Lisa. 2013. "Arctic Council Should Be Cautious about New Observer Hopefuls." *Nunatsiaq News,* February 1.

Griffiths, Franklyn. 2003. "The Shipping News: Canada's Arctic Sovereignty Not on Thinning Ice." *International Journal* 58 (2): 257–282.

Griffiths, Franklyn, Rob Huebert and Whitney Lackenbauer. 2011. *Canada and the Changing Arctic: Sovereignty, Security and Stewardship.* Waterloo: Wilfrid Laurier University Press.

Harper, Stephen. 2005. "Harper Stands Up for Arctic Sovereignty." December 22. www.dennisbevington.ca/pdfs/en/2005/dec25-05_speech-harper.pdf.

———. 2006. "Securing Canadian Sovereignty in the Arctic." Speech in Iqaluit, August 12.

———. 2008. "Prime Minister Harper Announces the John G. Diefenbaker Icebreaker Project." Inuvik, August 28. http://pm.gc.ca/eng/news/2008/08/28/prime-minister-harper-announces-john-g-diefenbaker-icebreaker-project.

Ho, Joshua. 2011. "The Opening of the Northern Sea Route." *Maritime Affairs: Journal of the National Maritime Foundation of India* 7 (1): 106–120. doi:10.1080/09733159.2011.601062.

Hong, Nong. 2012. "The Melting Arctic and its Impact on China's Maritime Transport." *Research in Transportation Economics* 35 (1): 50-57.

Huebert, Rob. 2003. "The Shipping News Part II: How Canada's Arctic Sovereignty Is on Thinning Ice." *International Journal* 58 (3): 295–308.

———. 2005. "Return of the 'Vikings': The Canadian-Danish Dispute over Hans Island – New Challenges for the Control of the Canadian North." In *Breaking*

Ice: Renewable Resource and Ocean Management in the Canadian North. Calgary: University of Calgary Press. 319-336.

———. 2008. "Canada Must Prepare for the New Arctic Age." *Edmonton Journal*, August 4.

———. 2009. "The Need for an Arctic Treaty: Growing from the United Nations Convention on the Law of the Sea." *Ocean Yearbook* 23.

———. 2012. "Canada and China in the Arctic: A Work in Progress." Meridian Newsletter. Fall/Winter 2011–Spring/Summer 2012. www.polarcom.gc.ca/uploads/Publications/Meridian%20FW2011-SS2012.pdf.

Ibbitson, John. 2010. "Stephen Harper's Frisky Northern Renaissance." *Globe and Mail*, August 27.

ICTMN. 2011. "Circumpolar Agreement Affirms Inuit Development Rights." ICTMN, May 26. http://indiancountrytodaymedianetwork.com/article/circumpolar-agreement-affirms-inuit-development-rights-35848.

Inuit Circumpolar Council. 2011. "A Circumpolar Inuit Declaration on Resource Development Principles in Inuit Nunaat." http://inuitcircumpolar.com/files/uploads/icc-files/Declaration_on_Resource_Development_A3_FINAL.pdf.

Inuit Qaujisarvingat. 2013. *Nilliajut: Inuit Perspectives on Security, Patriotism and Sovereignty*. Ottawa: Inuit Tapiriit Kanatami. http://gordonfoundation.ca/sites/default/files/publications/NILLIAJUT_Inuit%20Perspectives%20on%20Security,%20Patriotism%20and%20Sovereignty.pdf.

ITK. 2008. "An Integrated Arctic Strategy." www.itk.ca/sites/default/files/Integrated-Arctic-Stratgey.pdf.

Jakobson, Linda and Jingchoa Peng. 2012. "China's Arctic Aspirations." Stockholm International Peace Research Institute [SIPRI] Policy Paper No. 34.

Jian, Yang. 2012a. "China and Arctic Affairs." 2012 Arctic Yearbook Commentary. www.arcticyearbook.com/index.php/commentaries/32-china-and-arctic-affairs.

———. 2012b. "China Has a Key Role in Safeguarding the Arctic." *China Daily*, June 29.

Kikkert, Peter. "Rising Above the Rhetoric: Northern Voices and the Strengthening of Canada's Capacity to Maintain a Stable Circumpolar World." *Northern Review* 33: 8.

———. 2012. "Promoting National Interests and Fostering Cooperation: Canada and the Development of a Polar Code." *Journal of Maritime Law and International Commerce* 43 (3).

Kim, Hyun-Soo. 1994. "The 1992 Chinese Territorial Sea Law in Light of the UN Convention." *International and Comparative Law Quarterly* 43 (4).

Kira, Shuji. 2012. Statement by Parliamentary Senior Vice-Minister for Foreign Affairs of Japan Shuji Kira, Meeting between the Swedish Chairmanship of the Arctic Council and Observers/Ad-hoc Observers, Stockholm, November 6.

Koivurova, Timo. 2010. "Sovereign States and Self-Determining Peoples: Carving Out a Place for Transnational Indigenous Peoples in a World of Sovereign States." *International Community Law Review* 12: 191–212.

Koivurova, Timo and Erik J. Molenaar. 2009. *International Governance and Regulation of the Marine Arctic: Overview and Gap Analysis.* Oslo: World Wildlife Foundation.

Lackenbauer, P. Whitney. 2010. "Mirror Images? Canada, Russia, and the Circumpolar World." *International Journal* 65 (4): 879–897.

Landriault, Mathieu. 2013. « La sécurité arctique 2000-2010 : une décennie turbulente? » Unpublished Ph.D. dissertation, University of Ottawa.

Lasserre, Frédéric. 2010. "China and the Arctic: Threat or Cooperation Potential for Canada?" Canadian International Council China Papers No. 11, June. www.opencanada.org/wp-content/uploads/2011/05/China-and-the-Arctic-Frederic-Lasserre.pdf.

Lindholt, Lars and Solveig Glomsrød. 2012. "The Arctic: No Big Bonanza for the Global Petroleum Industry." *Energy Economics* 34: 1465–1474.

Manicom, James and P. Whitney Lackenbauer. 2013a. "East Asian States, the Arctic Council and International Relations in the Arctic." CIGI Policy Brief No. 26, April.

———. 2013b. "The Chinese Pole." *Policy Options* 34 (4).

Moore, Lynn. 2012. "China Hopes to Settle Arctic Disputes by 'Peaceful Means': Ambassador." *Nunatsiaq News,* February 1. www.nunatsiaqonline.ca/stories/article/65674china_hopes_to_settle_arctic_disputes_by_peaceful_means_ambassador.

Munson, James. 2012. "China North: Canada's Resources and China's Arctic Long Game." iPolitcs, December 31. www.ipolitics.ca/2012/12/31/china-north-canadas-resources-and-chinas-arctic-long-game/.

Nelson, Kristen. 2010. "BP Delays Liberty Drilling to 2011, Citing Expected Plan Reviews." *Petroleum News*, July 11.

Nobel, Justin. 2012a. "Cold Winter Equals Big Dollars for Pangnirtung Fishermen." *Nunatsiaq News*, April 24. www.nunatsiaqonline.ca/stories/article/65674cold_winter_equals_big_dollars_for_pangnirtung_fishermen/.

———. 2012b. "New Study Links ADHD in Inuit Kids to Mercury." *Nunatsiaq News*, October 1.

Nunatsiaq News. 2013. "China, Korea, EU Woo Arctic Council at Norway Conference." Nunatsiaq News Online, January 22. www.nunatsiaqonline.ca/stories/article/65674china_korea_eu_woo_arctic_council_at_norway_conference/.

Nunavut Tunngavik Inc. (NTI). 2006. "NTI Launches Lawsuit Against Government of Canada for Breach of Contract." Press release, December 6. www.tunngavik.com/blog/2006/12/06/nti-launches-lawsuit-against-government-of-canada-for-breach-of-contract/.

PPM Public Policy Management Limited. 2010. "Canada's Arctic Gateway: Discussion Paper," September. www.uwinnipeg.ca/conferences/arctic-summit/arctic-gateway-discussion-paper.pdf.

SSCFO. 2008. "The Coast Guard in Canada's Arctic: Interim Report." June.

Smith, Laurence C. and Scott R. Stephenson. 2013. "New Trans-Arctic Shipping Routes Navigable by Mid-century." *Proceedings of the National Academy of Sciences of the United States of America* 110 (13): 4871–2. http://www.pnas.org/content/110/13/E1191/1.

Struzik, Ed. 2007. "The True North Strong and Free But Not Cheap." *Toronto Star*, December 1.

———. 2009. "Canada Urged to Take Lead in Polar Research." *Edmonton Journal*, February 25.

Suthren, Victor. 2006. "Sinking the Navy in Afghanistan." *Ottawa Citizen,* November 2.

Tonami, Aki and Stewart Watters. 2012. "Japan's Arctic Policy: The Sum of Many Parts." *Arctic Yearbook 2012*. www.arcticyearbook.com/images/Articles_2012/Tonami_and_Watters.pdf.

Toronto Star. 2010. "Charting New Arctic Waters." *Toronto Star*, August 21. www.thestar.com/opinion/editorials/2010/08/21/charting_new_arctic_waters.html.

United Nations. 2013. "Submissions, through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, Pursuant to Article 76, Paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982." www.un.org/depts/los/clcs_new/commission_submissions.htm.

Vela, Thandiwe. 2013. "'Exceptional' Winter Ice Fishery." Northern News Services, February 18. www.nnsl.com/frames/newspapers/2013-02/feb18_13fis.html.

Voutier, Keltie, Bharat Dixit, Peter Millman, John Reid and Adam Sparkes. 2008. "Sustainable Energy Development in Canada's Mackenzie Delta–Beaufort Sea Coastal Region." *Arctic* 61, Suppl. 1: 103–110.

Wright, David. 2011a. *The Panda Bear Readies to Meet the Polar Bear: China and Canada's Arctic Sovereignty Challenge*. Calgary: Canadian Defence & Foreign Affairs Institute.

Wright, David. 2011b. "We Must Stand Up to China's Increasing Claim to Arctic." *Calgary Herald*, March 8.

Wright, David. 2011c. *The Dragon Eyes the Top of the World: Arctic Policy Debate and Discussion in China*. China Maritime Study 8, August.

Xu, Hua, Zhifang Yin, Dashan Jia, Fenjun Jin and Hua Ouyang. 2011. "The Potential Seasonal Alternative of Asia-Europe Container Service via Northern Sea Route Under the Arctic Sea Ice Retreat." *Maritime Policy & Management* 38 (5): 541–560. doi: 10.1080/03088839.2011.597449.

Yang, Huigen. 2012. "Development of China's Polar Linkages." *Canadian Naval Review*. 8 (3).

Yundt, Heather. 2012. "Canada's North Becomes a Battlefield in Arctic Video Game." *Nunatsiaq News*, February 9.

Zellen, Barry Scott. 2009. *Arctic Doom, Arctic Boom: The Geopolitics of Climate Change in the Arctic*. Santa Barbara: Praeger.

Zhang, Junsai. 2012. Text of a Speech at a Luncheon Held by the Montreal Council on Foreign Relations. February 1. http://ca.china-embassy.org/eng/sgxw/t901201.htm.

Chapter 10

Maritime Governance of the U.S. Arctic Region

James Kraska

I. The New American Arctic

The United States is awakening to important strategic, economic, navigational and cultural interests in the Arctic region. American national security and energy independence will be affected by polar politics. Climate change is one of the ten trends most likely to impact the joint military forces of the United States (Joint Operating Environment 2010: 32). Climate change portends a far busier Arctic region, as receding ice and technological advances for operating in extreme cold environments draw cruise ships, oil companies, fishing fleets and commercial shipping into the area. The shrinking summer ice cap could cut the distance on a transit from Asia to Europe by eight days, saving millions of dollars in shipping and freight costs for carriers. As the ice recedes, potential new areas for offshore oil development are exposed. The American Arctic already has produced more than 16 billion barrels of oil and may hold an additional 30 billion barrels of oil and 220 trillion cubic feet of natural gas. These figures reflect U.S. and financial accounting terms in which one million has 6 zeroes, one billion has 9 zeroes and one trillion has 12 zeroes. Fishing fleets may enter Arctic waters for the first time, in search of species of fish migrating north into warmer water.

The United States has broad civil and military air and sea navigational interests in the Arctic, including an interest in ensuring that commercial shipping in the Arctic Ocean and adjacent seas is secure. As an Arctic nation, the United States can play a leading role in shaping Arctic governance regimes. The country is expanding international cooperation to support reliable shipping, deep-water port facilities, aids to navigation, designation of places of refuge, vessel-to-shore communication, weather modeling and ice forecasting, ship tracking and reporting, and hydrographic mapping. The United States was also a leader in developing an Arctic Search and Rescue (SAR) agreement, which was signed by the eight members of the Arctic Council at a ministerial meeting in Nuuk, Greenland, on May 12, 2011 (Agreement on cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, done at Nuuk, Greenland, May 12, 2011). The agreement divides up SAR responsibilities for the Arctic Ocean among Finland and Sweden, Denmark,

Iceland, the United States, Canada and the Russian Federation. The Russian Federation has SAR responsibility for nearly half the Arctic. The Arctic SAR agreement is the first treaty made under the auspices of the Arctic Council, and the document sets the stage for follow-on agreements addressing issues such as Arctic marine pollution.

The U.S. Federalist framework offers an ideal backdrop for implementation of international standards for marine safety, security and environmental protection in the Arctic. The interplay among international legal regimes and U.S. national laws and Alaskan state statutes and regulations provides a holistic perspective of maritime governance in the Arctic Ocean surrounding Alaska, the Bering Strait and the Beaufort Sea.

A. Alaskan Geography and the Seas Beyond

The Arctic region may be defined in terms of high latitudes—those areas lying above the Arctic Circle. Arctic territory is often determined to include all of the land territory above the tree line. More specifically, the Arctic region may be demarcated by the southern extent of the mid-summer 10 degree °C (50 degree °F) isotherm. In 1953 the International Hydrographic Organization (IHO) defined the Arctic Ocean as all the waters, including ice-covered waters, seaward and to the north of the United States, Canada, Denmark (Greenland), Norway and Russia. The United States is a member of IHO, and the definition is useful, as far as it goes, but parts of the Bering Sea are also accepted as part of the Arctic region. The Arctic SAR agreement, for example, covers the areas north of the Arctic circle along the Siberian periphery, and 60° 00'00"N Latitude along the Canadian Arctic, and as southward as 50° 00'00"N Latitude in the Bering Sea.

In sum, although the term "Arctic" often is ascribed to that area above the Arctic Circle, which is parallel of the latitude that runs 66° 33'44" north of the Equator, Arctic conditions prevail farther south, making areas beyond the Arctic Circle considered to be "Arctic."

The primary feature of the Arctic region is the Arctic Ocean, which is the world's fourth largest. The definition includes semi-enclosed and smaller seas, including the Beaufort Sea, the Chukchi Sea, the Norwegian Sea, the Barents Sea, the Laptev Sea, the Greenland Sea and Baffin Bay. The Arctic Research and Policy Act of 1984, as amended in 1990, and which created the U.S. Arctic Research Council, contains yet another authoritative definition of the Arctic. The American Arctic is defined by the law to include "all United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort Sea, Bering Sea, the Chukchi Sea, and the Aleutian Island chain." (Public Law 98-373, July 31,1984; amended as Public

Law 101-609, November 16, 1990, codified at 15 U.S.C. § 4111 (2006). Consequently, U.S. and international rules governing activities in the Arctic Ocean, and in particular the laws pertaining to ships and aircraft operating in the area, are the keys to understanding the rule of law in the region.

By virtue of the 1867 purchase of Alaska from Russia, the United States is an Arctic nation with key strategic, economic, environmental and cultural interests in the region.[1] The Nation has more than 100 million acres of land above the Arctic Circle. The Bering Sea Watershed drains the greater Alaskan subcontinent region (Treaty Concerning the Cession of Russian Possessions in North America by His Majesty the Emperor of all the Russians to the United States of America, 30 March 1867, entered into force, June 20. 1867). Alaska is huge, occupying an area more than one-fifth the size of the entire continental United States. Alaska has more miles of coastline than the other 49 states combined. If a map of the State of Alaska were overlaid onto a map of the continental United States, with the eastern tip of the Alaska Panhandle grounded to the Atlantic Ocean, the western tip of Alaska (at the end of the Aleutian Islands chain) would stretch to the coast of California.

The immense area is also geographically and biologically diverse. But the United States views the Arctic principally as a maritime domain, and the country has a 700-mile shoreline on the Arctic Ocean (National Security US Presidential Directive/ NSPD-66 2009). Valdez, Alaska is one of the 20 largest ports in the United States by trade volume. Seven of the top 30 ports for fisheries, measured in terms of weight and value, are in Alaska (Arctic Nautical Charting Plan: A Plan to Support Sustainable Marine Transportation in Alaska and the Arctic (Office of Coast Survey, Marine Chart Division, National Oceanic and Atmospheric Administration, June 1, 2011, 6). Dutch Harbor, situated among the islands of Unalaska and Amaknak in the Aleutians, often ranks first among fishing ports in the United States in terms of volume of seafood caught—nearly 900 million U.S. pounds per year—or as measured by the value of the catch.[2] Surprisingly, however, Dutch Harbor, Unalaska—a town that features in the hit Discovery Channel television series "Deadliest Catch," has a population of just more than 4,000 people.

Alaska occupies the eastern side of the Bering Strait, sharing the waterway with the Russian Federation. The Bering Strait is 44 miles wide and separates Cape Prince of Wales, Alaska, and Cape Dezhneva, Siberia. The Russian island of Big Diomede and the American island of Little Diomede are only three miles apart. Legally, the Bering Strait is actually three straits—the waterway between Big Diomede and Siberia, the waterway between Little Diomede and Alaska, and the route between Big Diomede and Little Diomede. The passages to the east and west

of the islands have a depth of 20 to 30 fathoms. Most of the U.S. vessel traffic clings to the shore rounding Cape Prince of Wales.

The Bering Strait is a key node for Arctic—and potentially global—transportation since the chokepoint is the only entrance from the Arctic Ocean into the Pacific Ocean.

As such, safe and efficient use of the Bering Strait, also called the Bering Gate, is essential for using the Northwest Passage to connect the Pacific Ocean to Arctic destinations in North America or Europe, as well as for transiting from Europe to the Pacific via the Northern Sea Route. The U.S. Arctic also includes other key straits used for international navigation, including Unimak Strait in the Aleutian Islands, which is the only major connection between the shelves of the North Pacific Ocean and the eastern Bering Sea. More than 4,000 ships each year transit Unimak Pass, the busiest route through the Aleutians Islands. The strait connects ships plying a Great Circle route connecting the mega-ports of East Asia with the arrival ports along the West Coast of the United States (Anchorage Daily News, December 9, 2008).

B. Federalism and Complementary Roles

Both the legislative and executive branches of the Federal government have become more active in developing and refining the U.S. approach to the Artic. The White House, for example, released the over-arching national Arctic policy on January 9, 2009. National Security Presidential Directive-66, Arctic Region Policy, is the most succinct contemporary expression of U.S. national interests in the Arctic region (National Security Presidential Directive/NSPD-66/Homeland Security Presidential Directive/HSPD-25, January 9, 2009). The previous policy, which was issued in 1994, was half the length and included policy concerning both the Arctic region and Antarctica.

The U.S. Arctic policy was developed by an interagency group of Executive branch officials serving under the Oceans sub-policy coordinating committee of the Global Environment Policy Coordinating Committee (renamed the Global Environment Interagency Policy Committee by the Obama administration) at the National Security Council (NSC). The Oceans sub-policy coordinating committee is co-chaired by the Deputy Assistant Secretary of State for Oceans and Fisheries at the Department of State and a representative from the National Security Council staff. The Department of Homeland Security (represented by the U.S. Coast Guard), Department of Defense (represented by officials from the Office of the Under Secretary of Defense for Policy and the Directorate of Strategic Plans and Policy, Joint Chiefs of Staff) and Department of Commerce (represented generally on oceans issues by the National Oceanic and Atmospheric Administration or "NOAA"), assisted in the development of the policy. Each of these departments and

agencies has critical interests in the Arctic region, and the document was developed and finalized through a series of NSC meetings and interagency negotiations.

The single national Arctic policy belies divergence and weakness in the U.S. policy-making process. Arctic law, policy and governance in the United States and Alaskan offshore areas is complicated by the fragmented America's approach to national governance, which distributes power and authority both vertically and horizontally. Vertical distribution of authority is a function of the U.S. federal system of government. Under the U.S. federalist form of government set out in the U.S. Constitutional theory, all powers not specifically granted to the national government are reserved for the various individual states (e.g. the State of Alaska). Consequently, the State of Alaska may prescribe rules and bring enforcement action against vessels and persons who commit civil violations or crimes inside Alaska's three nautical mile state territorial sea.

At the individual state and national levels, regulatory and political authority is also distributed horizontally, reflecting a "separation of powers" model of governance. Typically power is divided between the legislative and executive "political" branches of government, but the judiciary also has great authority in its role of interpreting rules and laws pertaining to the Arctic. To this complex regulatory milieu are added tribal and local authorities, which each have additional responsibility and autonomy to prescribe and enforce rules.

Furthermore, there is a complex relationship between U.S. domestic law and international law, and the U.S. implementation of international obligations. The United States has a dualist model of international law and domestic law—each is considered to occupy a separate domain. So although "international law is part of U.S. law (The Paquete Habana, 175 US 677, 20 S.Ct. 290; 1900), in more precise terms the application of specific international rules by domestic courts most often requires implementing legislation.

In the Arctic, these considerations come into play most plainly in application of international law of the sea and U.S. maritime law or cases in admiralty. Shipping is an international activity, involving foreign-flagged and U.S.-flagged vessels. Foreign flagged vessels transport more than 90 percent of international commercial freight entering and departing ports of the United States (US Coast Guard, June 13, 2003). Foreign-controlled shipping accounts for 95 percent of passenger ships and 75 percent of cargo ships operating in U.S. waters (www.uscg.mil/ hq/gm/pscweb/origins).

1. Federal Preemption

Typically, Federal preemption and U.S. law exempts foreign-flagged vessels from certain state laws that interfere with innocent passage in the territorial sea, transit passage through straits used for international navigation, such as the Bering

Strait, or the exercise of freedom of navigation and other high seas freedoms throughout the EEZ. The Commerce Clause of the U.S. Constitution gives the Congress the power to regulate interstate and foreign commerce. Consequently, the regulation of maritime safety, marine environmental protection and marine transportation is a federal function. The Supremacy Clause of Article VI of the Constitution means that as long as the Federal government acts within an area of policy that is specifically delegated to it by the Constitution, state or local government laws that conflict with Federal action are pre-empted. As such, Federal maritime legislation may pre-empt states from exercising power. Furthermore, even in the absence of pre-emptive federal legislation, individual states may not constitutionally exercise power over a subject that is national in scope or that admits of only one uniform system or plan of regulation (see Gardbaum 1994).

Generally, the United States will preserve the right and freedom of navigation for foreign-flagged vessels by prescribing and enforcing regulations more strict than international standards only as a condition of port entry. For example, Title 33 of the U.S. Code, which contains the Ports and Waterways Security Act (PWSA), states: "Except pursuant to international treaty, convention, or agreement, to which the United States is a party, this chapter shall not apply to any foreign vessel that is not destined for, or departing from, a port or place subject to the jurisdiction of the United States and that is in: (1) innocent passage through the territorial sea of the United States, or (2) transit through the navigable waters of the United States which form a part of an international strait" (33 U.S.C. § 1223(d)).

The U.S. sensitivity to protecting the right of freedom of navigation of foreign-flagged vessels is not a new phenomenon. The International Voyage Load Line Act of 1973, which implemented the International Convention on Load Lines of 1966, also applied only to foreign vessels on international voyages that arrived at or departed from a U.S. port. These provisions have since been reenacted and modified in Chapter 51 of Title 46 of the U.S. Code. The United States is careful to protect the rights of other flag states to enjoy freedom of navigation in waters under U.S. jurisdiction in order to avoid creating adverse precedents that might be used by other coastal states to impede U.S. ships.

The good intentions of the Federal government, however, may not always prevail against state regulators. In some cases, individual states of the Republic have attempted to regulate foreign-flagged shipping in waters near their coasts. For example, the Board of Marine Pilots of the State of Alaska considered a proposal for compulsory pilotage for all vessels—including foreign-flagged vessels—transiting within the Chukchi Sea or Beaufort Sea. In January 2008, the Alaska Marine Pilots (AMP) proposed adoption of a scheme of compulsory pilotage in Arctic waters. Draft regulations submitted by AMP would have extended the state's compulsory pilotage area out to 200 miles from the shoreline. The proposal would have

amended Chapter 56, Title 12 of the Alaska Administrative Code, requiring compulsory pilotage seaward to a distance of 200 nautical miles, and not be connected to port entry requirements. All ships, including foreign-flagged vessels, would have been required to contract for an Alaska marine pilot, a mandate that is at odds with the right of high seas freedoms in the exclusive economic zone (EEZ) under articles 58 and 87 of UNCLOS.

The proposed mandatory pilotage rules were withdrawn, however, after stakeholders, including oil companies, pushed back and AMP questioned the authority of the State of Alaska to enact such regulations beyond the state three nautical mile limit (see Alaska State Legislature Senate Community and Regional Affairs Standing Committee, April 13, 2010). During a meeting of the AMP on April 28, 2010, the proposal to seek support of the Governor of Alaska for a statutory amendment to adopt compulsory pilotage in the Beaufort and Chukchi Seas failed by a vote of three to three (Board of Marine Pilots Meeting, State of Alaska, Department of Commerce, Community and Economic Development, April 28, 2010). Should the AMP proposal resurface and be adopted in Juneau by the government of the State of Alaska, it is expected that the portion relating to foreign-flagged ships operating beyond the state's three nautical mile territorial sea would be rejected by the U.S. Government as an infringement of federal power and inconsistent with both U.S. law and UNCLOS.

Generally, implementation of international agreements to which the United States is a party cannot be given effect without implementation under the Constitution, generally through passage of a federal statute. In some exceptional cases, U.S. treaty obligations are considered to be "self-executing" and not requiring implementing legislation. Normally, however, domestic statutory legislation or executive orders are required to apply or implement international laws or treaties for the United States. At the same time, however, the domestic authorities may refine jurisdictional limits or establish enforcement schemes and sanctions in the United States.

As a common law "dualist" legal system, which recognizes domestic or municipal law as distinct from international law, the United States generally applies international legal obligations through domestic implementing legislation, except in rare cases in which treaties are determined by the executive branch to be self-executing. The Convention on the Safety of Life at Sea 1974 (SOLAS 74), for example, is considered self-executing, and furthermore is enforceable against foreign-flagged vessels in U.S. waters because it reflects general maritime law (Allen 1998). But even in the case of SOLAS, however, the U.S. Coast Guard enforces the Convention as part of its Port State Control program to avoid impeding the freedom of navigation of foreign-flagged ships.

The dualist nature of U.S. law and international law also is affected by federalism, and federal preemption of state law. Individual states are entitled to regulate shipping traffic out to a distance of three nautical miles. The State of Alaska already has one statutory provision that apparently exceeds state authority to regulate foreign-flagged vessels. Title 8, Chapter 62, section 185 of Alaska Statutes appears in violation of federal law by purporting to regulate the transit of large oil tankers 50,000 tons or greater beyond the territorial sea (08.62.185, Alaska Statutes). The Alaska statute requires an Alaskan pilot to be on board all large oil tankers in the regulated area beyond the territorial sea, whether those vessels are calling on an Alaskan port or engage solely in coastwise trade or transit. In contrast, federal law provides a specific provision for marine pilots on oil tankers entering and leaving Prince William Sound, but the authority is based on the port state's right to set conditions of port entry (46 U.S .C. § 8502(g)). Tankers transiting the territorial sea and not calling at a U.S. port are not required to comply with the provision of federal law. The State of Alaska should clarify the state provision, however, which has caught the attention of the federal government.

2. The Federal Government's Arctic Presence

The U.S. Arctic Region Policy indicates that the Nation's priorities for maritime transportation in the Arctic region are: (a) to facilitate safe, secure, and reliable navigation; (b) to protect maritime commerce; and (c) to protect the environment. Furthermore, the policy recognizes that safe, secure, and environmentally sound maritime commerce in the Arctic region depends on infrastructure to support shipping activity (such as appropriate reception facilities), search and rescue capabilities, short and longrange aids to navigation, high-risk area vessel-traffic management, iceberg warnings, notices to mariners and other sea ice information, effective shipping standards, and measures to protect the marine environment (Arctic Region Policy, *supra*, note 9.)

The Coast Guard is involved in each of these missions, and the armed force plays a dominant role in ensuring safety and security of vessels in the American Arctic. In order to conduct operations related to these missions, the Coast Guard has a variety of bases, infrastructure and ships located throughout Alaska.

II. American Application of the Law of the Sea

The result of the U.S. perspective is that the Arctic Ocean, despite its unique physical characteristics and ice coverage, is regarded as not juridically or qualitatively different from other oceans in respect to the freedoms, rights, duties and obligations of coastal states, port states and flag states. In general, the order of the oceans is liberal and permissive, and the U.S. has fought numerous wars large and small to

protect freedom of the seas. Conflicts relating in whole or in part to U.S. concern for freedom of the seas include the Quasi-War (1798-1800), the First and Second Barbary Wars, the War of 1812, World War I and World War II, the Vietnam War—which began after the naval attacks against U.S. forces in the Gulf of Tonkin and ended with the hostage rescue off the coast of Cambodia to free the SS Mayaguez. In 1979, President Carter launched the Freedom of Navigation Program, which has shaped American involvement in the Persian Gulf (see generally, Kraska, 2010). State practice in the Arctic Ocean or any other ocean can affect the practice of the law of the sea globally. Consequently, the nation is relatively conservative in its application of coastal state jurisdiction over foreign-flagged vessels in the Arctic and elsewhere in order to avoid creating adverse precedent that could be used by other coastal states to diminish commercial and military freedom of the seas.

The point of departure for analysis of U.S. national rules in the Alaskan Arctic is the country's diplomatic practice in issues concerning the international law of the sea. In 1945, President Truman declared U.S. jurisdiction over the "natural resources of the subsoil and sea bed of the continental shelf" (Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf," 10 Federal Register 12303 (October 2, 1945)). This pronouncement initiated a trend in the United States—and much of the world—for greater coastal state regulation over activities beyond the territorial sea. Although a maritime power, the United States is also a coastal state, and it has enacted a series of laws to regulate environmental, economic and security interests in U.S. Arctic waters.

All of the Federal departments and agencies of the U.S. Government support and promote the United Nations Convention on the Law of the Sea (UNCLOS), which since 1983 has served as the essential rule-set for U.S. maritime activities and naval operations globally. Since the Arctic is primarily a maritime domain with the Arctic Ocean the central feature of the region, the United States views the international law of the sea, particularly as embodied in UNCLOS, as the primary legal architecture that reflects the rules applicable to the Arctic. The United States signed the Ilulissat Declaration of May 28, 2008, which stated: "Notably, the law of the sea provides for important rights and obligations concerning the delineation of the outer limits of the continental shelf, the protection of the marine environment, including ice-covered areas, freedom of navigation, marine scientific research, and other uses of the sea. We remain committed to this legal framework and to the orderly settlement of any possible overlapping claims" (see ttp://www.sikunews.com/art.html?catid=2&artid=4950).

The United States is not a party to UNCLOS, but after President Ronald Reagan issued a presidential proclamation 5030 of March 10, 1983 (Ronald

Reagan, Presidential Proclamation 5030, March 10, 1983; 48 Federal Register 10605, 3 C.F.R. 1983 Comp. 22), and declared that the United States would accept the navigation and overflight provisions of the Convention. Washington has adhered to all parts of the treaty except Part XI on seabed mining. In particular, the United States recognizes the rights and duties of coastal states, port states and flag states reflected in the Convention and the navigational regimes set forth in UNCLOS.

Generally, the United States eschews straight baselines and instead employs normal baselines. Article 4 of the 1958 Convention allows some coastal nations with coastlines that are deeply indented or cut into, or with a fringe of islands, to use of straight baselines. Straight baselines permit the coastal state to claim waters that would be part of the territorial sea under a strict contour system of measurement, thereby pushing maritime boundaries farther off shore. The United States has not adopted a straight-baseline system. In United States v. California, the U.S. Supreme Court stated that by adopting the 1958 definitions, it sought to stabilize expectations and establish "a single coastline for both the administration of the [Submerged Lands Act by the various states] and the conduct of [the federal government's] future international relations" (United States v. California, 381 U.S. 139, 165 (1965)).

Many U.S. laws use imprecise or inconsistent terms to refer to ocean areas, such as U.S. "navigable waters," "coastal waters," "ocean waters," "territory and waters," "customs waters," "waters of the United States," and "waters subject to the jurisdiction of the United States." Competing interpretations have arisen, for example, over the seaward extent of jurisdiction in the Endangered Species Act and the National Environmental Policy Act (NEPA). Those two statutes apply to U.S. persons, but a number of other regulations that may apply to foreign-flagged vessels have inconsistent or unclear extension of jurisdiction at sea. The Federal Water Protection Control Act (FWPCA, also known as the "Clean Water Act," and the Oil Pollution Act 1990 (OPA 90), both refer to a three nautical mile territorial sea rather than a 12 nautical mile territorial sea.

These inconsistencies and ambiguities in jurisdictional scope have raised legal issues in civil and criminal litigation unrelated to natural resources, such as the regulation of offshore gambling. In order to ameliorate the confusion, Congress has amended some laws regulating marine commerce to reflect a 12 nautical mile territorial sea, but there has not been a comprehensive or systematic effort to consolidate and update all ocean-related statutes. As a result, yet another layer of complexity is added to the horizontal and vertical diffusion of authority in U.S. laws pertaining to the Arctic region. Despite some inconsistencies in U.S. law, it is useful to remember that the term "navigable waters" in U.S. law typically refers to all

navigable waters of the United States including the territorial sea of the United States, extending seaward 12 nautical miles from the baseline.

A. Territorial Seas and International Straits

Consistent with UNCLOS, the United States proclaimed a 12 nautical mile territorial sea in 1988 (Proclamation 5928 of December 27, 1988). Generally speaking, U.S. federal statutes and regulations consider the "navigable waters of the United States" as comprised of internal waters (landward of the baseline) and those waters within the 12 nautical mile territorial sea (Proclamation 5928 of December 27, 1988: Territorial Sea of the United States of America, 54 Federal Register 1977 (January 9, 1989) and 33 C.F.R. § 2.22 (Territorial sea)). American law also refers to "waters subject to the jurisdiction of the United States," which includes the territorial seas (C.F.R. § 2.38). From the baseline to three nautical miles, individual states have authority to manage resources throughout the water column and on and under the seafloor.

Within the federalist system, coastal state title to the submerged lands, waters, and natural resources are located within three nautical miles of the coastline (43 U.S.C. §§ 1301 and *United States v. Louisiana*, 363 U.S. 1, 7: 1960). Beyond this three-nautical mile limit to the outer edge of the 12 nautical mile limit, all of the water, seabed, and natural resources belong to the U.S. federal government (43 U.S.C. § 1302 and Outer Continental Shelf Lands Act (43 U.S.C. §§ 1331(a), 1332(1). Both within three miles of the beach, and between three and twelve miles seaward, the federal government, rather than the coastal state, retains the sole power to regulate commerce, navigation, power generation, national defense, and international affairs. A number of individual states have contested the location of the federal-state maritime boundary, and some have resorted to litigation to adjudicate their claims (See, *United States v. Louisiana*, 363 U.S. 1 (1960): *United States v. Florida*, 363 U.S. 121 (1960); *United States v. Maine*, 475 U.S. 89 (1986); *United States v. Maine*, 469 U.S. 504 (1985); *United States v. California*, 381 U.S. 139 (1965) and *United States v. Alaska*, 521 U.S. 1 (1997).

The "customs waters" of the United States are defined as waters that extend from the baseline to a line parallel to and no more than 12 nautical miles from the baseline (19 U.S.C. §§ 1401(j) and1709(c)). Areas beyond 12 nautical miles from the baseline also may be designated in special arrangements between the United States and other nations (19 U.S.C. § 1401(j) and § 1709(c)). Thus the term "customs waters" may or may not be synonymous with the U.S. territorial sea, but it is not a shorthand reference to the contiguous zone.

The American Arctic contains a number of straits used for international navigation—those areas of the territorial sea that connect one area of the high seas or EEZ to another area of the high seas or EEZ. There is a substantial and growing maritime trade linking the United States with manufacturers in Asia. Unimak Pass

and the Bering Strait are the most prominent international straits in the American Arctic region. Many of the vessels trading between northern Asia and the northern Pacific Coast ports of the United States and Canada follow the Northern Great Circle Route through Unimak Pass at the eastern end of the Aleutian Islands chain. The 1,200-mile-long Aleutian Island chain is remote and sparsely populated. Unimak Pass lies west of Unimak Island, and is 1,300 miles west of Juneau, Alaska and 800 miles southwest of Anchorage, Alaska. Before the territorial sea in the Aleutians was extended to 12 nautical miles, international shipping enjoyed a high-seas corridor through Unimak Pass. Today, however, the territorial sea of the United States entirely overlaps the waters of Unimak Pass. Umnak Pass is a strait used for international navigation and the regime of transit passage applies in the strait and the approaches to the strait. The regime of innocent passage applies in the territorial sea outside of the strait and outside its approaches. A wide variety of vessels use the route, including large containerships, bulk carriers, car carriers and tank and Liquid Natural Gas (LNG) vessels. About 4,500 large commercial ships transit Unimak Pass each year, and 3,600 of the vessels are westbound because the majority of eastbound vessels follow more favorable currents by using the route south of the Aleutians (Special_Report (2009) 293,74). Most of the ships using Unimak Pass are foreign-flagged vessels.

Vessels that use a transpolar route to enter or exit the Pacific Ocean must pass through the Bering Strait, the 53-mile wide opening between Alaska and Russia. The Bering Strait is the Pacific gateway to the Arctic Ocean for the Northern Sea Route and the Northwest Passage. In the middle of the strait sits the Diomede Islands. In the summer of 2008 there were 100 transits through the strait, primarily vessels resupplying Alaskan communities or research outposts. One of the vessels was an ecotourism cruise ship, Bremen, which took 400 tourists to Barrow, Alaska. Barrow is the northernmost city of the United States (Joling 2009).

Currently, neither the United States nor Russia has adopted regulations or shipping controls in the Bering Strait. In the future, however, the Bering Strait likely will require a traffic separation scheme (TSS) that would have to be negotiated in conjunction with Russia and adopted at the International Maritime Organization. The daily maritime border cooperation and routine security management between the Seventeenth Coast Guard district and the Far Eastern region of the Federal Border Guard Service of Russia is the most functional bilateral relationship between the two countries. The arrangement is also one of the best bilateral security relationships in the Arctic outside of NATO.

The two nations closely coordinate the management of the Bering Strait under an agreement signed in 1995 between the U.S. Coast Guard and the Federal Border Guard Service of the Russian Federation (Memorandum of Understanding between the United States Coast Guard and the Federal Border Service of the Russian

Federation, October 20, 1995). A 2001 protocol to the agreement instituted bilateral operational procedures to more effectively combine U.S. and Russian maritime law enforcement in the North Pacific, including search and rescue operations, protection of the two nations' 200-mile exclusive economic zones, prevention of terrorism and smuggling at sea and maritime border security (Promulgation of Agreed Operational Procedures as Outlined in the Combined Operations Manual Between the United States Coast Guard and the Federal Border Service of the Russian Federation, April 9, 2001). In order to accomplish these tasks, Moscow and Washington developed a Combined Operations Manual or "playbook" for conducting operations, including cooperative procedures for command, control and communications, information-sharing, boarding of suspicious vessels, flight operations and emergency assistance Section II, Promulgation of Agreed Operational Procedures as Outlined in the Combined Operations Manual between the United States Coast Guard and the Federal Border Service of the Russian Federation, April 9, 2001.The two nations also exchange personnel and conduct combined training and operations along the Bering Strait.

In May 2011, Russia and the United States completed a collection of bilateral statements and agreements on counterterrorism, civil aviation security, visa issues, and further cooperation in the Bering Strait Region. The statement on the Bering Strait reflects the intention of the parties to cooperate broadly in the cross-boundary Bering Strait region, including greater contact between the government agencies responsible for the specially protected natural territories of both countries in the State of Alaska and Chukotka autonomous district of Russia (US Official News, ACC-NO: 257399602 , May 26, 2011). They also expressed their intention to increase interaction and facilitate travel among the native peoples living in these two regions. The cornerstone of the renewed relationship between Moscow and Washington is the omnibus Presidential Commission, which seeks to advance a common agenda across 18 working groups.

B. Contiguous Zone and Exclusive Economic Zone

Article 33 of UNCLOS recognizes states may maintain a contiguous zone seaward of the territorial sea. Within the contiguous zone, a coastal state may assert limited authority related to customs, fiscal, immigration, and sanitary (preventive health) laws. On 2 September 1999, President William J. Clinton proclaimed a U.S. contiguous zone extending seaward from 12 to 24 nautical miles offshore (See Presidential Proclamation 7219 of August 2, 1999, Contiguous Zone of the United States. (64 Federal Register 48701 (August 8, 1999)); Correction to Proclamation 7219 (64 Federal Register 49844 (September 14, 1999)) and Correction to Proclamation 7219 (64 Federal Register 49276 (September 10, 1999 U.S.C.A. App. §§ 1901-1904). The United States recognizes the right of all nations to conduct

high seas freedoms and other internationally lawful uses of the sea throughout the contiguous zone.

Within the contiguous zone, the Coast Guard is authorized to prevent infringements to and enforce violations of customs laws of the United States, including the interdiction of illegal substances such as illicit drugs bound for the United States. The zone of enforcement extends to the outer edge of the contiguous zone, and also includes foreign vessels on the high seas if the flag-state has waived objection or consented to enforcement measures. Interestingly, for the purposes of the Federal Water Pollution Control Act only, the contiguous zone is defined as a zone 9 nautical miles wide, adjacent to and seaward of the territorial sea (33 U.S.C. §§ 1251 et seq.)

For all other purposes, the term "contiguous zone" describes all waters within the area adjacent to and seaward of the territorial sea, as defined in §2.22(a), and extending to 24 nautical miles from the baseline from which the territorial sea is measured (Presidential Proclamation 7219 of August 2, 1999, Contiguous Zone of the United States. (64 Federal Register 48701 (August 8, 1999)); Correction to Proclamation 7219 (64 Federal Register 49844 (September 14, 1999)) and Correction to Proclamation 7219 (64 Federal Register 49276 (September 10, 1999)). See also, Vice-President Al Gore, Extension of Federal Enforcement Zone in U.S. Coastal Waters Will Help Prevent Violations of Environmental, Customs, or Immigration Laws (September 2, 1999).

The U.S. exclusive economic zone (EEZ) is the largest in the world, spanning over 13,000 miles of coastline and containing 3.4 million square nautical miles of ocean—larger than the combined land area of all fifty states. President Ronald Reagan declared the U.S. EEZ in 1983, and it extends seaward from 12 to 200 nautical miles (President Ronald Reagan, Proclamation 5030 of March 10, 1983, Exclusive Economic Zone of the United States. (48 Federal Register 10605 (March 14, 1983)); President Ronald Reagan, Statement on United States Ocean Policy, 19 Weekly Comp. Pres. Doc. 383 (March 10, 1983); Fact Sheet, United States Ocean Policy, Office of the Press Secretary, The White House, March 10, 1983 and Department of State Public Notice 2237, "Exclusive Economic Zone and Maritime Boundaries; Notice of Limits," (60 Federal Register 43825 (August 23, 1995)).

The Magnuson-Stevens Fishery Conservation and Management Act defined the EEZ as having an inner boundary that is coterminous with the seaward boundary of each of the coastal states of the United States (16 U.S.C. § 1802(11)).

The U.S. EEZ in the Arctic is a product of the coastline of Alaska. The waters around Alaska constitute one of the largest territorial sea and EEZ fisheries in the United States, stretching 842,000 square nautical miles. For purposes of U.S. law, the EEZ "means the zone seaward of and adjacent to the territorial sea, as defined in

§2.22(a) of Title 33 of the U.S. Code, including the contiguous zone, and extending 200 nautical miles from the territorial sea baseline (except where otherwise limited by treaty or other agreement recognized by the United States) in which the United States has the sovereign rights and jurisdiction and all nations have the high seas freedoms"([1]33 C.F.R. § 2.30 Exclusive Economic Zone).

Consistent with UNCLOS and customary international law reflecting traditional high-seas freedoms, the U.S. does not generally assert jurisdiction or control over foreign-flagged surface or submarine vessels or aircraft in overflight, or the laying of cables and pipelines on the ocean floor, in the EEZ. Consistent with the coastal state obligation in UNCLOS to normally consent to the conduct of marine scientific research in the EEZ, the United States generally elects not to assert jurisdiction over foreign-flagged marine scientific research in the EEZ (Article 246(3), UNCLOS).

C. Vessel Traffic Services

The U.S. Arctic Policy indicates that the United States works through the International Maritime Organization to improve the safety and security of maritime transportation, including ship routing and reporting systems, such as traffic separation and vessel traffic management schemes in Arctic chokepoints. Under the PWSA, the Coast Guard may control U.S. and foreign-flagged vessel traffic, including provision of vessel traffic services (VTS) for monitoring and active control of vessel traffic in U.S. ports and waterways. In fulfilling this duty, the Coast Guard may require vessels operating in a VTS area to comply with special directions and to carry communications and other equipment that are used to participate in the VTS program. As a condition of port entry, vessels may be required to provide pre-arrival notice and data (33 U.S.C. § 1223(a)).

The PWSA also authorizes the establishment of fairways and traffic separation schemes for vessels operating in the territorial sea and in high seas approaches to ports and other areas under the jurisdiction of the United States (46 U.S.C. § 1223(c)).

The Coast Guard has authority to operate a vessel traffic service (VTS) in any port or place under the jurisdiction of the United States for the purpose of controlling or supervising vessel traffic or for protecting navigation and the marine environment.[188] Additionally, the Ports and Waterways Safety Act authorizes the Coast Guard to establish and operate a national system of Vessel Traffic Services (VTS) (33 U.S.C. § 1223). The VTS also promote safe vessel movement by reducing the potential for collisions and groundings. The TransAlaska Pipeline Authorization Act of 1973 amended the PWSA to require the Coast Guard to operate a VTS in Prince William Sound (33 U.S.C. § 1228).

The Vessel Traffic Center (VTC) for the entire system is operated by the U.S. Coast Guard Marine Safety Unit in Valdez, Alaska.[1] The southern terminus of the pipeline is on the south shoreline of the Port of Valdez, at the Alyeska Pipeline Service Company tanker terminal. Port Valdez is at the north end of Prince William Sound, and Cape Hinchinbrook is at the south entrance. Geographically, the area is comprised of deep open waterways surrounded by mountainous terrain. See, Public Law 93-153; Title 1, Ports and Waterways Safety Act of 1972 (86 Stat. 424, Public Law 92-340). The system is called, "Vessel Traffic Service Prince William Sound" or "VTSPWS."

The VTS, which consists of both surveilled and non-surveilled systems, provides active monitoring and navigational advice for vessels in particularly confined and busy waterways. Surveilled systems are tied to one or more land-based sensors (e.g. radar, AIS and closed circuit television sites), which output their signals to a central location where operators monitor and manage vessel traffic movement. Non-surveilled systems consist of one or more reporting points at which ships are required to report their identity, course, speed, and other data to the monitoring authority.

The VTC operates a dependent surveillance system to track tankers transiting Prince William Sound, requiring these vessels to carry position and identification reporting equipment. The ability to supplement radar with dependent surveillance bridges the gap in areas where radar coverage is impractical. Dependent surveillance data is integrated with radar data in an electronic chart display at the VTC.

Cruise ships and charter vessels navigate through the waters of Glacier Bay and the Inside Passage in Southeast Alaska every year. Additionally, more than 10,000 fishermen transit the waterways of the Alexander Archipelago. Although the geographic archipelago provides some protection from the Gulf of Alaska's extreme weather, much of the area experiences strong semi-diurnal tides, which can create swings of 30-feet between high and low tide. Consequently, Alaska's nationally and internationally recognized network of navigational aids, consisting of buoys, channel markers and lighthouses, are critical to avoiding underwater obstructions, collisions and running aground (Shinn, 2009). The Coast Guard maintains 832 navigational aids throughout Southeast Alaska. Some of the marine navigational aids, such as buoys, are enormous in size— weighing 8,000 metric tons, plus an addition 8 metric tons for the attached concrete sinker, which anchors the buoy to the seafloor. These large buoys may be greater than 10 meters long and 3 meters wide.

The Collision regulations (COLREGs) apply in waters under U.S. jurisdiction (Presidential Proclamation of 19 January 1977 (see also, Executive Order No. 11964, January 19, 1977, 42 Federal Register 4327). The International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS 72) apply to all other vessels when on waters subject to the jurisdiction of the United States. The

proclamation states that the COLREGS applies to all U.S. vessels, public and private, and to all other vessels when on waters subject to the jurisdiction of the United States (IMO Rule 10; International; Traffic Separation Schemes):

> (a) This rule applies to traffic separation schemes adopted by the Organization and does not relieve any vessel of her obligation under any other rule.
>
> (b) A vessel using a traffic separation scheme shall: (1) Proceed in the appropriate traffic lane in the general direction of traffic flow for that lane; (2) So far as practical keep clear of a traffic separation line or separation zone; (3) Normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable (The "Rules of the Road," or Inland Navigational Rules Act of 1980, apply to internal U.S. waters. Pub. L. 96-591, Sec. 2, December 24, 1980, 94 Stat. 3415 (codified at 33 U.S.C. §§ 2001-2071).

The Prince William Sound Traffic Separation Scheme (TSS) was adopted by the International Maritime Organization (IMO), which means that international shipping is required to comply with the traffic lanes and separation zone. Because of this, the TSSs are subject to the provisions of Rule 10 of COLREGS 72.

A VHF-FM communications network forms the basis of most major vessel management services in Alaska. Transiting vessels make position reports to the vessel traffic center by radiotelephone and are in turn provided with accurate, complete, and timely navigational safety information. The network of radars, AIS, and close circuit television cameras for surveillance and computer-assisted tracking, similar to that used in air traffic control, decreases vessel congestion and reduces the probability of a marine casualty.

United States law requires participation in the Prince William Sound VTS as a Vessel Movement Reporting System User (VMRS User) for vessels that are power driven and 40 meters or more in length, while navigating; vessels towing another vessel of 8 meters or more in length, while navigating; and, vessels certificated to carry 50 or more passengers for hire, while engaged in trade (33C.F.R. § 161.16).

Vessel tracking in Prince William Sound VTS includes four categories: (a) Vessels in the radar coverage area; (b) vessels equipped with the Automatic Identification System (AIS) in the radar coverage area; (c) vessels outside the radar coverage area; and (d) AIS equipped vessels outside the radar coverage area. Vessels in the radar coverage area are tracked by their radar returns and by their voice reports. AIS equipped vessels in the radar coverage area are tracked by their AIS transponder updates (accurate to within 10 meters), radar returns, and voice reports.

Vessels outside the radar coverage area are tracked by their voice reports only, while AIS equipped vessels outside radar coverage are tracked by their transponder updates.

The PWSA authorizes the Coast Guard to establish safety zones, regulated navigation areas, and limited access areas. Vessel entry into these zones may be prohibited or confined to certain vessels. For example, the Valdez Marine Terminal Safety Zone is an area within 200 yards of waterfront facilities at the Trans-Alaska Pipeline Valdez Marine Terminal (VMT) complex or vessels moored or anchored at the VMT and the area within 200 yards of any tank vessel maneuvering to approach, moor, unmoor or depart the VMT (C.F.R. § 165.1701). [199] No person, vehicle, vessel or object may enter or remain in a Safety Zone unless authorized by the Captain of the Port or the District Commander (33 C.F.R. § 165.23).

The Ammunition Island Safety Zone is the area within a radius of 1330 yards of Ammunition Island (61°07.28''N, 146°18'29''W) and any vessel moored or anchored at Ammunition Island. Additionally, a moving Safety Zone is established 200 yards around a vessel navigating the VTS Area to or from Ammunition Island from abeam of Naked Island to Ammunition Island (33 C.F.R. § 165.1703).

Under certain circumstances, a Vessel Traffic Service may issue directions to control the movement of vessels in the territorial sea in order to minimize the risk of collision between vessels, or damage to property or the environment. At all time, however, the operator or master directing the movement of the vessel remains responsible for the manner in which the vessel is operated and maneuvered, and is responsible for the safe navigation of the vessel under all circumstances.

III. Future Directions in Arctic-American Maritime Governance

As traffic through the Bering Strait increases, we may expect that the United States will develop, in conjunction with the Russian Federation, vessel traffic services, traffic separation schemes and routing measures, expanded coverage for the automatic identification system and additional long-range vessel tracking systems, towing services and escort tugs; more comprehensive aids to navigation; vessel environmental response plans area contingency plans.

It is clear that the Arctic is becoming more important to the United States, and the country is awakening from a period in which it could be characterized as the "reluctant Arctic power" (Huebert 2009). Huebert correctly notes: "There are three main sources of multilateral activity in the Arctic: the Arctic Environmental Protection Strategy (AEPS), the Arctic Council, and the United Nations Convention on the Law of the Sea (UNCLOS). All three involve a hesitant and reluctant United States." Now, however, the United States is awakening to the

reality of increased access and activity in the Arctic (Patrick and Bolstad 2011). There are a variety of pending proposals before Congress, including amendment of the Basic Authorities Act of 1956 to establish a U.S. Ambassador at Large for Arctic Affairs (S. 1229, United States Ambassador at Large for Arctic Affairs Act of 2011, June 16, 2011). The United States is set to continue funding for hydrographic survey missions to obtain data for better understanding the U.S. littoral Arctic and delineate the Extended Continental Shelf (ECS) in some areas of the Arctic Ocean beyond the 200-nautical mile EEZ. On July 7 2011, for example, the 231 foot-long NOAA ship *Fairweather* began conducting undersea mapping in Kotzebue Sound at the tip of Bladwin Peninsula above the Arctic Circle—something not done in almost 150 years (Alaska Dispatch, July 7, 2011). The deployment of *Fairweather* is in support of NOAA's *Arctic Nautical Charting Plan* (Office of Coast Survey, Marine Chart Division, National Oceanic and Atmospheric Administration, June 1, 2011). In fiscal years 2012 and 2013, $2 million has been proposed specifically for ECS operations, with an additional $5 million for provision of additional hydrographic services in the Arctic to ensure safety of navigation (H.R.295, January 12,2011).

The Coast Guard is conducting a Port Access Route Study in western Alaska in order to prepare for shipping transiting the Northwest Passage and the Northern Sea Route and through the Bering Strait. Senate Bill 1561 includes funding for development of this infrastructure, and in 2009 it was referred to the Committee on Commerce, Science, and Transportation (Senate Resolution 1561, August 3, 2009).[3] The bill also would direct the Coast Guard to conduct a vessel traffic risk assessment for the Bering Strait and the Arctic Ocean adjacent to Alaska's North Slope to estimate future shipping traffic and evaluate the need for traffic separation schemes, long-range vessel tracking systems, emergency response services and response or contingency planning, and traffic exclusion zones. Finally, the bill also calls for improvements to the harbor at St. George Island, in the Bering Sea, as a "harbor of refuge," and a feasibility study for a potential deep-water port on Alaska's Arctic.

The U.S. Arctic policy expressed an intention for the nation to establish a riskbased capability to counter hazards in the Arctic environment, including pollution prevention and response, determination of basing and logistics for airlift and icebreaking capabilities, and cooperative agreements for improved search and rescue. The policy also recognized a need to develop Arctic waterways management regimes in accordance with accepted international standards, including vessel traffic-monitoring and routing; safe navigation standards; accurate and standardized charts; and accurate and timely environmental and navigational information. We may

expect that as vessel traffic in the American Arctic increases, that regulations implementing these goals will be pursued unilaterally, bilaterally and multilaterally.

Finally, the United States is supporting efforts at the International Maritime Organization to update and make mandatory the Polar Code, which sets forth CDEM requirements for ships operating in the Arctic. The initial Guidelines were adopted at IMO in 2002 and then amended in 2009 (IMO Doc. MSC/Circ. 1056 MEPC/Circ. 399, 2009). The Guidelines apply to vessels in the Arctic and Antarctica, and took effect on January 1, 2011.

Meanwhile, however, the IMO sub-committee on Ship Design and Equipment (DE) began work on a mandatory Polar Code, establishing a correspondence group to work on the issue intercessionally. The DE subcommittee held meetings in October 2010 and March 2011. Although a mandatory Polar Code has not been adopted, it appears that such an instrument is a matter of time. The DE already has sketched out a number of major provisions, including agreement that the Code should be risk-based, have both mandatory and recommendatory components, separate requirements for the Arctic and Antarctic, if necessary, focus initially on cargo vessels and cruise ships, and include a chapter on environmental protection (IMO Doc. DE 53/26, 2010). Despite this progress, it has become clear that IMO's original 2012 target date for completion of a mandatory Polar Code will not be met, although such an instrument could be adopted by the IMO Assembly in 2013.

References

Alaska Dispatch.2011. *NOAA Vessel Begins Arctic Underwater Mapping.* July 7, 2011, Available online at http://www.alaskadispatch.com/article/noaa-vessel-begins-arctic-underwater-mapping.

Alaska. Board of Marine Pilots Meeting, State of Alaska, Department of Commerce, Community and Economic Development, April 28, 2010, Juneau, Alaska. Available at , http://www.dced.state.ak.us/occ/pmar/pub/MAR_Minutes_2010_04.pdf.

Alaska. State Legislature Senate Community and Regional Affairs Standing Committee, April 13, 2010, at p. 7, Available online at http://www.legis.state.ak.us/pdf/26/M/SCRA2010-04-131708.PDF.

Allen, Craig. 1998. Federalism in the Era of International Standards: Federal and State Government Regulation of Merchant Vessels in the United States (Part II), Journal of Maritime Law & Commerce 582 (1998).

Anchorage Daily News. 2009., *Shipping risks: Aleutian route will get badly needed safety study* . December 9, 2008.

Dan Joling, Dan. Coast Guard Prepares as Arctic Shipping Lanes Melt, Associated Press, February 7, 2009.

Gardbaum, Stephen A.. 1994. The Nature of Preemption, 79 *Cornell L. Rev.* 767, 793-94 (1994).

Huebert, Rob.2009. United States Arctic Policy: The Reluctant Arctic Power, 2 School of Public Policy Briefing Papers, University of Calgary (May 2009), at 9. Available online at http://policyschool.ucalgary.ca/node/195

Kraska, James. 2010. *Maritime Power and the Law of the Sea.*

Patrick, Jarondakie and Erika Bolstad. 2011. Summit Shows US is Trying to Catch Up on Arctic Issues, *Anchorage Daily News*, May 21, 2011. Available online at http://www.adn.com/2011/05/21/1875137/summit-shows-us-istrying-to-catch.html

Pluta, Rear Admiral Paul J. 2003. Vessel Operations Under Flags of Convenience and National Security Implications, Rear Admiral Paul J. Pluta, U.S. *Coast Guard, statement before the House Armed Services Committee*. June 13, 2003

Reagan, Ronald. President. 1983. Statement on United States Ocean Policy, 19 *Weekly Comp. Pres. Doc.* 383 (March 10, 1983)

Shinn,Walter. 2009. Keep Alaska Moving, *Alaska Bear* (Fall 2009):22. Available online at http://www.uscgalaska.com/clients/c780/268354.pdf.

U.S. Congressional Documents and Debates 1774-1875. Treaty Concerning the Cession of Russian Possessions in North America by His Majesty the Emperor of all the Russians to the United States of America, 30 March 1867, entered into force, June 20. 1867, reprinted in, *XV Statutes at Large, Treaties and Proclamations of the United States of America From December 1867 to March 1869*: George P. Sanger, ed., 1869: 539-544. US Library of Congress. Available online at, http://memory.loc.gov/cgi-bin/ampage?collId=llsl&fileName =015/llsl015.db&recNum=2.

United States Ocean Policy, Office of the Press Secretary, The White House, March 10, 1983. Fact Sheet.

US Coast Guard. 1995. Memorandum of Understanding between the United States Coast Guard and the Federal Border Service of the Russian Federation, October 20, 1995 (copy on file with the author).

US Coast Guard. 2001. Promulgation of Agreed Operational Procedures as Outlined in the Combined Operations Manual Between the United States

Coast Guard and the Federal Border Service of the Russian Federation, April 9, 2001

US Coast Guard. nd. Origins of the Port State Control Program, U. S Coast Guard. Available online at www.uscg.mil/hq/gm/pscweb/origins.

US Department of Defense, Joint Operating Environment. 2010. United States Joint Forces Command, Department of Defense, 2010.

US Environmental Protection Agency. nd..Science Applications International Corporation (SAIC) for the U.S. Environmental Protection Agency Available at http://eh2o.saic.com/SectionProjects/EnvAnalysis/BeringSea/Images/BeringSea.jpg.

US National Oceanic and Atmospheric Administration. 2011. Arctic Nautical Charting Plan: A Plan to Support Sustainable Marine Transportation in Alaska and the Arctic. Office of Coast Survey, Marine Chart Division, National Oceanic and Atmospheric Administration, June 1, 2011: 6. Available online at http://www.nauticalcharts.noaa.gov/mcd/docs/Arctic_Nautical_Charting_Plan.pdf

US National Security Presidential Directive. 2009.[1] Arctic Region Policy, National Security Presidential Directive/NSPD-66/Homeland Security Presidential Directive/HSPD-25, January 9, 2009, http://www.fas.org/irp/offdocs/nspd/nspd-66.htm.

US Official News. U.S.-Russia Agreements and Joint Statements, US Official News, ACC-NO: 257399602 , May 26, 2011.

US Transportation Research Board of the National Academies of Science, Committee on the Risk of Vessel Accidents and Spills in the Aleutian Islands. 2009. A Study to Design a Comprehensive Assessment, Risk of Vessel Accidents and Spills in the Aleutian Islands: Designing a Comprehensive Risk Assessment - Special Report (2009) 293

US. 1945. Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf," 10 Federal Register 12303 (October 2, 1945).

US. 1999. Vice-President Al Gore, Extension of Federal Enforcement Zone in U.S. Coastal Waters Will Help Prevent Violations of Environmental, Customs, or Immigration Laws (September 2, 1999).

US. Department of State Public Notice 2237, "Exclusive Economic Zone and Maritime Boundaries; Notice of Limits," (60 Federal Register 43825 (August 23, 1995)).

Federal and State Laws and Court Cases Cited

08.62.185, Alaska Statutes.

33 C.F.R. § 2.30 (Exclusive Economic Zone).

33 C.F.R. § 2.38 (Waters subject to the jurisdiction of the United States; waters over which the United States has jurisdiction).

33 C.F.R. § 2.36 (Navigable waters of the United States, navigable waters, and territorial waters).

33C.F.R. § 161.16.

33 C.F.R. § 165.23.

33 C.F.R. § 165.1701.

33 C.F.R. § 165.1703.

33 U.S.C. § 1223

33 U.S.C. § 1223(a)

33 U.S.C. § 1228.

33 U.S.C. §§ 1251 et seq.

43 U.S.C. §§16

43 U.S.C. § 1301 et seq.

43 U.S.C. §1302.

43 U.S.C. §§ 1331(a), 1332(1)). Outer Continental Shelf Lands Act

46 U.S.C. § 1223(c).

43 U.S.C. § 1802(11).

Cooley v. Board of Wardens of Port of Philadelphia, 53 U.S. (12 How.) 299, 319 (1851).

H.R.295 -- To amend the Hydrographic Services Improvement Act of 1998 to authorize funds to acquire hydrographic data and provide hydrographic services specific to the Arctic for safe navigation, January 12, 2011, Available online at http://thomas.loc.gov/cgi-bin/query/D?c112:6:./temp/~c112El7lOM:

S. 1229, United States Ambassador at Large for Arctic Affairs Act of 2011, June 16, 2011, Available online at http://thomas.loc.gov/cgi-in/query/D?c112:1:./temp/~c112El7lOM:

U.S.C.A. App. §§ 1901-1904.

US Executive Order No. 11964, January 19, 1977, 42 Federal Register 4327.

US Inland Navigational Rules Act of 1980, apply to internal U.S. waters. Pub. L. 96-591, Sec. 2, December 24, 1980, 94 Stat. 3415 (codified at 33 U.S.C. §§ 2001-2071).

US President Ronald Reagan, Presidential Proclamation 5030 (March 10, 1983), 48 Federal Register 10605, 3 C.F.R. 1983 Comp. 22.

US Presidential Proclamation 7219 of August 2, 1999, Contiguous Zone of the United States. (64 Federal Register 48701 (August 8, 1999)); Correction to Proclamation 7219 (64 Federal Register 49844 (September 14, 1999)) and Correction to Proclamation 7219 (64 Federal Register 49276 (September 10, 1999)).

US Presidential Proclamation of 19 January 1977 (entered into force July 15, 1977).

US Proclamation 5928 of December 27, 1988. Territorial Sea of the United States of America. (54 Federal Register 1977 (January 9, 1989)) and 33 C.F.R. § 2.22 (Territorial sea).

US Public Law 98-373, July 31,198 Executive Order No. 11964, January 19, 1977, 42 Federal Register 4327.

US Public Law 93-153; Title 1, Ports and Waterways Safety Act of 1972 (86 Stat. 424, Public Law 92-340).

US Public Law 101-609, November 16, 1990, codified at 15 U.S.C. § 4111 ,2006.

US Senate Resolution 1561, August 3, 2009, To ensure safe, secure, and reliable marine shipping in the Arctic, including the availability of aids to navigation, vessel escorts, oil spill response capability, and maritime search and rescue in the Arctic, and for other purposes, Available online at http://thomas.loc.gov/home/gpoxmlc111/s1561_is.xml.

United States v. Louisiana, 363 U.S. 1, 7 (1960).

International Law Citations

IMO Rule 10; International; Traffic Separation

IMO Doc. DE 53/26, Report to the Maritime Safety Committee, March 15, 2010, IMO Doc. DE 54/13/3, Report of the Correspondence Group, August 2, 2010, and DE 54/23, Report to the Maritime Safety Committee, November 17, 2010.

IMO Doc. MSC/Circ. 1056 MEPC/Circ. 399, Guidelines for Ships Operating in Arctic Ice-Covered Waters, December 2002 and IMO Res. A.1024 (26), Guidelines for Ships Operating in Polar Waters, December 2, 2009.

United Nations Declaration on the Law of the Sea. Article 246(3). UNCLOS.

Chapter 11

Marine Protected Areas in Russian Waters: Legal Framework for a Climate Change Resilience Tool

Mikhail Kalentchenko

Abstract

Climate change is recognized internationally as a good example of a complex problem where site specific case studies and participatory methodologies are particularly appropriate. The effects of change unfold at the local level, and so do adaptive responses, creating opportunities to investigate the dynamics of the two. In this respect MPAs shall be regarded as the integral part of resilience building for marine areas. Regular monitoring within MPAs is an important source of information for decision makers. However, the efficiency of management largely depends upon cross sectoral coordination and trans-boundary implementation supported by adequate legal framework. From this perspective, the existing Russian legal framework is subject to the test on adequacy for MPA implementation in the Arctic waters under the Russian jurisdiction.

Introduction

Climate change brings about new challenges in terms of security by going "beyond traditional security" and encompassing both an environmental and a human security dimension (Heininen, 2007). Significant existing pressure on marine ecosystems, and especially vulnerable Arctic ecosystems, is believed to be aggravated by growing demand for biological and mineral resources accompanied by easier access following the ice cap meltdown. If unattended, this pressure will soon exhaust the assimilation potential of the environment and decrease the ability to sustain the coastal populations and mankind in general (ACIA 2004). As Lassi Heininen and Heather Nicol stressed earlier, "if climate change impacts human security and peoples' everyday security …, it consequently needs and requests human responses in global, regional, national and local levels". Therefore climate change calls for activities meaning both mitigation and adaptations in the levels of economics, politics and governance (Heininen and Nicol in this volume).

Understanding the challenge and scale of the response needed, however, leaves the question of the toolkit open. Thus we need to consider proper instruments to ensure the very existence of mankind "under the conditions of uncertainty of climate change" (Heininen 2007). Under the circumstances the concept of "resilience in socialecological systems" seems to be an interesting point of departure. Resilience in the broad sense is understood as "the capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity" (Walker et al. 2006). The concept of resilience by *the Resilience Alliance* is applicable both to natural and social systems, as well as to the systems containing both components – socialecological systems or SES (www.resalliance.org). In the latter, social and ecological components are identifiable, though not easily parsed for either analytic or practical purposes. As social-ecological systems are dominated by human actions, the adaptability of such systems is mainly a function of the individuals and groups managing them. The capacity of the former to manage resilience with intent determines whether they can successfully avoid crossing into an undesirable system regime or succeed in crossing into a desirable one (Walker et al. 2006).

The concept of resilience suggests the shift of policies from attempting to control change in presumably stable systems, "to managing the capacity of social-ecological systems to cope with, adapt to, and shape change". Consequently resilience building should be based on "adaptive management". Adaptive management is supposed to allow simultaneously for different management policy tests and emphasizes learning on resource use and management, monitoring, and accumulating knowledge on the way. To match the dynamics and uncertainty inherent in the system, constant adjusting of the rules that shape our behavior is required (Folke et al. 2002). The adaptive management approach treats policies as hypotheses, and management as experiments from which managers can learn, accepting uncertainty and expecting surprises (Walters 1986; Gunderson et al. 1995; Ostrom 1999).

The above considerations prove the proposition that there is "no solution to ecological problems once and for all" (Haila and Heininen 1995). For these reasons defining of human security in the Arctic should be associated with the ability to establish adaptive management models aiming to prevent or/and withstand the disturbances (Heininen 2008). In this respect site-based measures should be welcome and marine protected areas (or MPAs) shall be regarded as the integral part of resilience building inasmuch as marine spaces are concerned. Regular monitoring within MPAs is an important source of information on the status of ecosystems for management purposes. Other useful effects of MPAs are preservation of living and other resources, and spill-over effects in adjacent areas. However, the efficiency of management largely depends upon cross-sectoral coordination and transboundary implementation supported by an adequate legal framework.

Two separate sets of challenges are easily traceable. On the one hand, coastal state jurisdiction in the major maritime zones, according to contemporary international law, "is being developed along functional, rather than zonal, lines" (Churchill and Lowe 1999). On the other hand, boundaries within marine natural systems do not coincide with the limits of jurisdiction of coastal states. As the border issues shall be addressed internationally (Breide and Saunders 2005) there arises an issue whether Russian national legislation is adequate to achieve MPA objectives. From this perspective, the existing Russian legal framework is subject to the test on adequacy for MPA implementation in the Arctic waters under Russian jurisdiction.

General legal framework for in situ conservation in Russia

First we need to acknowledge the fact that international law does not provide clearly set rules for MPA development and management (Breide and Saunders 2005; Bishop, K. et al. 2004). Accordingly the response by many coastal states shows a huge variety of management and underlying legal tools employed to establish the measures of marine conservation *in situ* (Salm et al. 2000). The legislation of the Russian Federation is also being developed along the functional lines acquiescent to the international legal regime of maritime spaces where sovereign rights or jurisdiction can be exercised by the coastal state. As the Russian law contains no specific tools for the Arctic conservation, general rules of the national legal framework apply. The only act containing specific rules for navigation along the Northern Sea Route sets out certain requirements as to ice-breakers use and passage authorization procedure. However, the measures stipulated by this act refer to navigation in the ice only and are challenged by some countries (E.g. Smith, 1992).

For the purposes of this presentation these acts may be categorized by the level of enactment (federal, regional or local), regulated activity (e.g. shipping, fishing, mineral resources development, etc.), space (land, air, sea or their particular zones), site (e.g. Especially Protected Nature Area or other Protected Area, Border Zone, etc.), resource other, than space (e.g. oil, fish, mammals, birds, etc.), or components not treated as natural resources (e.g. rare or endangered species, waste, etc.). By virtue of Art. 71 of the Russian Federation Constitution as of 1993 federal authorities have exclusive jurisdiction over *inter alia* all and any maritime zones, border zone and management therein. Consequently it is only federal acts and regulations in furtherance thereof that can establish legal regime of maritime spaces (and the adjacent air space) as well as most sea use related activities, including marine shipping, fisheries, construction of islands, cables, pipelines, etc.

For the time being, site based (including maritime spaces) conservation measures are stipulated by a number of federal acts. The backbone of the Russian conservation in general is associated with the Environmental Protection Act N 7-FZ as of 2002. This federal act is applicable at the RF territory as well as at the EEZ and the continental shelf. Article 58 (1) stipulates that specific legal regime may be granted for "*prirodny obyekt*" ("natural object")[1] through *inter alia* establishment of "*osobo okhranyaemaya prirodnaya territoriya*" ("especially protected nature area" - EPNA). Article 58(2) states that EPNAs can be *established* and *managed* in accordance with the legislation on EPNAs.[213] Meanwhile the same article 58(3) reads that *in situ* protection may be effected through establishing of either EPNA or "*osobo okhranyaemaya territoriya"* ("especially protected area"). Further analysis shows, that purposes (protection of natural and other relevant values) and core of the legal regime (limitations or ban on certain activities within a designated area) of the latter allow classifying both as "protected areas". However, the legal regime of non-EPNA site based measures may be established in accordance with other legal tools than Especially Protected Nature Areas Act N 33-FZ, 1995. This implies that protected areas framework in Russia consists of *in situ* measures established and managed in accordance with 33-FZ Act (EPNAs) and other protected areas without EPNA status[214]. Whereas the legal regime of the latter will be governed by any acts other than 33-FZ Act (or regulations adopted in furtherance thereof). With the view to the above the system of Russian protected areas looks as, Table 1 shows surface and underground water bodies, air (all layers), plants, animals and other living organisms. The notion of "natural object" includes "a natural ecosystem, natural landscape and components thereof that preserve their natural qualities". The confusion arises when one tries to grasp the difference between "natural ecosystem" and "natural landscape". From the viewpoint of geography both of them mean interacting systems of organic and inorganic matter and living organisms in space. However, we shall not dwell on the subject any longer as the difference have not been sought so far in cases where practical disputes were resolved. What is essential is that "natural objects" are, in fact, systems of organic and inorganic matter and living organisms whose interaction has obvious spatial characteristics.

This is important as the Environmental Protection Act, 2002 was adopted after Especially Protected Nature Areas Act N 33-FZ had been introduced. The latter Act provides for six management categories of in situ measures where the management regime and status are strictly linked. There is general understanding among Russian experts on environmental law that EPNAs can be established exclusively under Act N 33-FZ and other tools adopted in furtherance of the same.

[1] Art. 1 "Interpretation" of Russian Environmental Protection Act, 2002 defines "environment" as interacting components of natural environment, natural objects, anthropogenic objects, as well as natural objects modified by human activity. Where "components of environment" include earth, subsoil, soil,

For practical purposes those site base conservation measures under Russian legislation without EPNA status will be referred to as "protected areas".

Practical implications of this conclusion are shown below.

Table 11-1. Protected Areas

EPNA*	Other in situ measures**
zapovednik (~biosphere reserve if UNESCO listed)	areas in which navigation is prohibited or dangerous (N/I)
national park	traffic separation schemes/sea lanes (N/I)
zakaznik	fishing regulations (N/I)
natural monument	especially protected subsoil objects (N)
nature park	buffer zones/research restrictions (N)
dendrology park or botany garden	
other to be decided by government	

* according to 33-FZ Act, national legal regime; ** applicable to marine environment only, both national (N) and international (I) legal regime

Opportunities for in situ conservation of marine systems

Applicable federal laws in this field are literally few. These are *ratione loci* based the Continental Shelf Act, the Internal Sea Waters, Territorial Sea and Contiguous Zone Act, 1998, the Exclusive Economic Zone Act, 1998, and *ratione materiae* based Subsoil Act, 1992 and the Fisheries Act, 2004. For instance, the Internal Sea Waters, Territorial Sea and Contiguous Zone Act, 1998 permits establishing of MPAs in the form of "areas in which navigation is prohibited or dangerous". The limitations on activities are formulated in Art. 15 as follows:

> 1. In order to ensure the safety of navigation, safeguard the State interests of the Russian Federation and protect the environment in the internal maritime waters and the territorial sea, areas in which navigation is prohibited and which are temporarily dangerous for navigation may be established, in which navigation, anchoring, hunting for sea mammals, bottom fishing, underwater or dredging work, the taking of bottom samples, underwater explosions, navigating with a corroded anchor chain, the flying, hovering and landing (splashdown) of aircraft and other activities are completely prohibited or temporarily restricted.
>
> In areas in which navigation is prohibited, the navigation of all ships, warships, other government ships and all other floating facilities is prohibited. Decisions to establish areas in which navigation is prohibited and to open them for navigation, and regulations for such areas shall be taken by

> the Government of the Russian Federation upon a submission by the federal executive body concerned. These decisions shall enter into force after they have been announced in advance in *Notices to Mariners*.
>
> Areas which are temporarily dangerous for navigation shall be established for a specific period of time. Decisions to establish areas which are temporarily dangerous for navigation and the regulations for such areas shall be taken by the specially empowered federal executive body for defence. These decisions shall enter into force after they have been announced in advance in *Notices to Mariners*.
>
> The boundaries of the areas in which navigation is prohibited shall be indicated on the navigation charts issued by the specially empowered federal executive body for defence.
>
> Changes relating to such areas shall be published in advance in *Notices to Mariners* and shall be announced by radio.
>
> (http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/STATEFILES/RUS.htm).

So we find detailed prescriptions as to purposes, procedure of establishing and management of protected areas in internal sea waters and territorial seas. Such legal regime can be efficiently imposed on Russians and foreigners alike though without prejudice to innocent passage rights under the international law. However, no specific authority is allocated to relevant bodies in terms of research and monitoring. There is another problem when one tries to draw a line between *in situ* measures according to the Act under review and EPNAs that can be established under 33-FZ Act in the same maritime zone.

The Exclusive Economic Zone Act, 1998 allows introduction of regulations as to fisheries, dumping and discharges, underwater cables and pipelines, installations, marine research, vessels traffic management (including those carrying hazardous substances). Limitations of activity in certain areas of Russian EEZ may be imposed by Federal Acts (laws), Government Decrees (on fisheries, cables and pipelines, installations, dumping and discharges) or by Government Decrees pending IMO approval (on sea lanes, traffic separation schemes). As for the continental shelf, protection there may be granted to subsoil, sedentary species. There may be imposed restrictions as to cables, pipelines, installations and sedentary species targeting fisheries, yet no restrictions may be imposed on navigation on a unilateral basis. Subsoil Act and Fisheries Act are applicable to relationships within any maritime zones where the RF enjoys sovereign rights or jurisdiction without prejudice to provisions of the above enactments on internal sea waters, territorial

sea, EEZ and continental shelf. The former also contain provisions as to details of legal regime of various site based protection measures including limitations on activities, compliance, enforcement, monitoring etc. However, all the above acts allow establishment of marine protected areas (MPA) in an internationally recognized sense (*see* Table 2).

Discussion

The regime and status of measures described above, though, may conflict with the measures stipulated by the Especially Protected Nature Areas Act. As previously mentioned, this law was adopted in 1995 before Russia ratified the UN Convention on the law of the sea 1982 (in 1997) and leaves numerous gaps. Firstly, the scope of this law does not extend across the Russian maritime border. This means that no EPNA can be established in the EEZ and on the continental shelf. Secondly, EPNAs are ranked by categories that do not fit easily into the IUCN system and their legal regime is stringently linked to their status. Federal level EPNA status implies that the governance shall be affected by a specifically authorized body (for the time being such body is Rosprirodnadzor reporting to the Ministry for Natural Resources and Ecology). And the competence of Rosprirodnadzor to establish and manage EPNA obviously lies within 12-mile zone.

The point is that a number of federal agencies are authorized to implement certain enforcement and management functions under the acts based on *ratione materiae* concept whereas special authority (enforcement) is vested in Border Guard Service over all and any maritime zones under Russian jurisdiction. The latter, in turn, is not responsible for certain important aspects of marine environment protection such as research and monitoring. Thus general rules of governance over site based conservation of maritime space are not explicitly defined.

To summarize, on the one hand, the authority of different agencies as to governance of site based measures partly overlap in the internal waters and territorial sea. The degree of such overlap depends on the status of protection measures (EPNA or other protected area). On the other hand, no site based conservation measures outside Russian territorial sea can obtain status of EPNA. Adaptation of the law "On especially protected nature areas" to the needs of marine areas protection by just extending its scope across the maritime border will be of little assistance as further modifications of other federal acts will be required. To name but few, laws and regulations on border protection and natural resources management as well as bylaws of agencies responsible for border (Border Guard Service), subsoil (Rosnedra), aquatic biological resources (Goskomrybolovstvo) shall be modified. As redistribution of power inevitably leads to "tug-of-war" between different agencies of federal level, this appears to be a dead end. The development of

a legal framework for cross sectoral coordination is viewed as more preferable option.

Conclusions

We definitely observe certain shortcomings, both legal and institutional, on the national level. Both aspects are closely intertwined and inextricable. First, there is little or no coherence between EPNA and other legal instruments for *in situ* conservation of marine environment, while 33-FZ Act does not cover marine areas outside the 12-mile zone. Second, establishment of MPAs, on whatever legal platform, depends on the initiative of executive agencies. Third, though there is the agency with nominal responsibility for EPNAs, it is hardly to be expected to undertake to establishment and management of all legally possible forms of *in situ* protection of the marine environment other that prescribed by 33-FZ Act. Fourth, monitoring, research and protection in the maritime zones are carried out by different agencies unwilling to co-operate, though even specifically authorized agencies lack capacity (equipment and competent staff).

It does not take genius to give an outline of possible consequences. First of all, information gaps will seriously hamper chances of adaptive management and resilience objectives will hardly be achieved. Meanwhile natural ecosystems stand little chance to survive under growing pressure. Possible solution in the field of site based protection of marine environment in the Arctic under jurisdiction of the Russian Federation could be the following:

- carry out inventory of the scope of different agencies;
- match real capacity vs. scope; and
- develop and introduce legal basis for co-ordination to achieve objectives of the adaptive management (adapt legal framework to the needs of MPAs establishment and management).

References

ACIA 2004. Impacts of warming Arctic: Arctic Climate Impact Assessment. Cambridge University Press.

Bishop, K. et al. 2004. *Speaking a Common Language. The uses and performance of the IUCN System of Management Categories for Protected Areas*. Cardiff University, IUCN: The World Conservation Union and UNEP - World Conservation Monitoring Centre.

Breide, C. and P. Saunders. 2005. Legal Challenges for the Conservation and Management of the High Seas and Areas of National Jurisdiction. Gland, Switzerland: WWF International.

Churchill, R.R. and A.V. Lowe. 1999. *The law of the sea*. Manchester University Press.

Folke, Carl. et al. Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations. Scientific Background Paper on Resilience for the process of The World Summit on Sustainable Development on behalf of The Environmental Advisory Council to the Swedish Government (April 16, 2002) . Available online at http://www.unisdr.org/eng/risk-reduction/sustainable-development/ resilience-sd.pdf

Gunderson L.H., C.S.Holling and S.Light editors. 1995. *Barriers and Bridges to the Renewal of Ecosystems and Institutions*. Columbia University Press, New York.

Haila Y. and Lassi Heininen, 1995. "Ecology: A New Discipline for Disciplining?" *Social Text* 42 - Spring 1995, 153-171. Duke University Press.

Heininen, Lassi. 2007. Beyond Regional Stability: the Conditions and Challenges of Global Security Problems. In: *Proceedings of Calotte Academy 2007*. Edited by Lassi Heininen. University of Lapland, Rovaniemi 2008: 61-80.

---. 2008. Overview of Geopolitics of a Changing North. Background Material for The 5th Open Meeting of the Northern Research Forum (NRF). Available online aT http://www.nrf.is/Open%20Meetings/Anchorage/5thNRF-BackgoundMaterialVersionII Febr 08.pdf

Ostrom E. 1999. Coping with Tragedies of the Commons. *Annual Review of Political Science.* 2: 493-535.

Salm, R.V. et al. 2000. Marine and Coastal Protected Areas. A Guide for planners and managers. Washington DC: IUCN.

Schultz. 2006. A handful of heuristics and some propositions for understanding resilience in social-ecological systems. *Ecology and Society* 11(1): 13. Available online at URL:http://www.ecologyandsociety.org/vol11/iss1/art13/

Smith R.W. 1992. United States Responses to Excessive National Maritime Claims. Limits in the Seas. № 112.

Walker, B. H. et al. 1998.. Governance as theory: five propositions. *International Social* Science Journal 50:17-28.

Walters CJ. 1986. Adaptive Management of Renewable Resources. McGraw Hill, New York.

Legal Sources Cited:

Federalny zakon ot 10.01.2002 № 7-FZ. "Ob okhrane okruzhayuschshey sredy". SZ RF. 2002. № 2. Ст. 133.

Federalny zakon ot 14.03.1995 № 33-FZ «Ob osobo okhranyayemykh prirodnykh territoriyakh". SZ RF. 1995. № 12. St. 1024.

Federalny zakon ot 30.11.1995. № 187-FZ "O kontinental'nom shelfe Rossyiskoi

Federatsii". SZ RF. 1995. № 49. St. 4694. English version: Federal Law on the Continental Shelf of the Russian Federation adopted by the State Duma on 25 October 1995, source: National legislation - DOALOS/OLA - United Nations. Available online at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/STATEFILES/RUS. htm

Federalny zakon ot 31.07.1998 № 155-FZ "O vnutrennykh morskykh vodakh, territorial'nom morye i prilezhascshey zone Rossyiskoi Federatsii". SZ RF. 1998. St. 3833. English version: Federal Act on the internal maritime waters, territorial sea and contiguous zone of the Russian Federation. Translated from Russian. Original text communicated by the Permanent Mission of the Russian Federation to the United Nations in February 2001, source: National legislation - DOALOS/OLA – United Nations). Available online at http://www.un.org/Depts/los/LEGISLATION ANDTREATIES/STATEFILES/RUS.htm

Federalny zakon ot 17.12.1998 № 191-FZ "Ob isklyuchitel'noy ekonomicheskoy zone Rossyiskoi Federatsii". RG. 1998. № 244. English version: Federal Act on the exclusive economic zone of the Russian Federation. Translated from Russian. Original text communicated by the Permanent Mission of the Russian Federation to the United Nations in February 2001, source: National legislation - DOALOS/OLA-United Nations. Available online at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/STATEFILES/RUS.htm

Federalny zakon ot 21.02.1992 № 2395-1 "O nedrakh". RG. 1992. № 102.

Federalny zakon ot 20.12.2004 № 166-FZ "O rybolovstve i sokhranenyi vondnykh biologicheskykh resursov". SZ RF. 2004. № 25. St. 2485.

Federalny zakon ot 24.04.1995 № 52-FZ "O zhyvotnom myre". SZ RF. 1995. № 17. St. 1462.

Zakon Rossyiskoi Federatsii ot 01.04.1993 № 4730-I "O gosudarstvennoy granitse Rossyiskoi Federatsii. RG. 1993. № 84 (Act on the State border of the Russian Federation 1 April 1993 - Translated from Russian. Original text communicated

by the Permanent Mission of the Russian Federation to the United Nations in February 2001, source: National legislation - DOALOS/OLA - United Nations). Availabe online at http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/STATEFILES/RUS.htm

Ukaz Prezidenta Rossyiskoi Federatsii "Voprosy struktury federal'nykh organov ispolnitel'noy vlasti" ot 20.05.2004 № 649. SZ RF. 2004. № 21. St. 2023.

Section D: Overview and Conclusions

Chapter 12

Natural News, Scholarly Discourses and the Arctic: From New Cold War to "Business Is Usual"

Heather N Nicol

Introduction

In his historical study of the history of geopolitics, Agnew (2003) suggested that three major eras can be defined. Each of these have seen major shifts in geopolitical perspective, world views, and strategic thinking. 'Naturalized' geopolitics, for example, marked the early 20th century, when scientific processes demanded geopolitical action to mediate their impacts. It followed from an age of 'civilizational' geopolitics in which world domination was justified by intellectual arguments for empire. By the midtwentieth century and the Cold War years, the world was organized by geopolitical perspectives which stressed the ideology of binary opposites. Today, it seems, the combined narratives of 'ideological' and 'civilizational work through the only lately retired discourses of War on Terror', but there is also a distinctive 'naturalized' geopolitical discourse which informs dealings with the Arctic world through the lens of climate change. True, the science of climate change is more reliable and certainly less racist than the social Darwinism discourse of the early 20th century, or the crude 'Manifest Destiny' imperatives of 19th century Anglo-Saxonism, but the point remains the same: We are increasingly framing our understanding of Arctic issues and climate change in general through the lens of a highly 'naturalized' geopolitics. Just like in previous eras, there are pitfalls to this type of determinism. This article traces the current state of naturalized geopolitics in the North American 'North' and points out some of its more obvious weaknesses, particularly in the way in which it naturalizes, and thus justifies, what has potential to become an unfettered resource extraction approach to Arctic development challenges.

The 'Urgent' News: Naturalizations and its Application to the Arctic Region

It goes without saying that the major way of framing the Arctic in the current media has been through the lens of clmate change and a scramble for resources. The Arctic has been decsribed as 'under siege' for its resources – the equivalent of a treasure chest waiting to be plundered. Such images reflect a rather general consensus that the Canadian Arctic is becoming a push-button issue for newsmakers, if the North is recast in ways which play to a burgeoning Canadian sense of national pride and a lust for natural resources (see CBC News 2009). Such narratives build upon the mythical North—the way in which Victorians, for example, saw these icy climes as a testing ground for manhood and national virility (see Dittmer, 2011).The process of Arctic maritime boundary-making has been, sinice about 2003, told as a story of nationhood, as a challenge to the strength of the Canadian state in an international arena and a challenge to a heroic Canadian engagement with the North. In the media, the subtleties of maritime boundary making, international law and border disputes has been debated from all angles, and the muscular response of the government duely noted. But, as at least one columnist has noted, "the government has responded with little more than rhetoric to threats to Canadian sovereignty in its frozen backyard. Canada must move quickly and make immediate, strategic investments in its Arctic" (Washington Post, August 6, 2010. Moreover, as the *Hill Times* reported in 2006, the connection between Arctic boundar-making and resource extraction was probably more cogent than any appeal to nationalist sentiments. Defence Minister Gordon O'Connor stated, in 2006, for example, that:

> the basic problem in these disputes is a matter of resources-who owns which resources. For instance, let's take the Beaufort Sea. We may declare that a boundary goes to the Beaufort Sea in one position and the Americans in another. If a country wanted to drill for oil in the Beaufort Sea, and there's a lot of oil and gas there, they, at the moment, if they're in this disputed area, wouldn't know who to approach, whether it's the United States or Canada to get drilling rights. So these sort of things have to get resolved. (Vongdouangchanh, 2006)

In this sense, economic development was an important part of the rationale for strategic defence and it was captured in a narrative that conflated climate, resources, borders and power. Academics too, jumped into the fray. The Arctic was mapped and positioned in terms of the boundary lines, national interests and international security. A host of scholars discussed how the scenario of melting ice might reframe Canada's, and other nations, national interests and lead to challenges for places and spaces previously undisputed (Borgerson 2008; Huebert 2010). But Canadians were

not alone in perceiving the Arctic in this way. The Russians, for example, had staged a flag-planting on the Arctic Ocean's floor, with the intent of exciting Russians and investing them in a sense of national pride in the northern dimension of the Russian state. The Russian media reported the event in a way which really spoke to the symbolic, rather than legal significance of the event: "A Tass reporter on board the mission support ship said crew members cheered as Chilingarov climbed out of the submersible and was handed a pair of slippers…"This may sound grandiloquent but for me this is like placing a flag on the moon, this is really a massive scientific achievement," Sergei Balyasnikov, spokesman for Russia's Arctic and Antarctic Institute, told Reuters" (CNN August 2007).

Americans too, had developed a perspective on the Arctic, and they, too tended to adopt the 'Arctic siege' mentality. At the same time, the U.S. continued on its trajectory of 'science and oil', meaning that its interests in Arctic regions and its Arctic agenda was driven by promoting American science as if it were a foreign policy, as well as by big oil interests in offshore Alaska, and the Canadian Arctic (Borgerson 2008). Still, the Washington Post, responding to the planting of a Russian flag on the Arctic Ocean seabed, in 2007, emphasized similarities between Canada and the U.S., and noted that "Canada and the United States scoffed at the legal significance of the dive by a Russian mini-sub to set the flag on the seabed Thursday. "This isn't the 15th century. You can't go around the world and just plant flags" to claim territory, Canada's minister of foreign affairs, Peter MacKay, told reporters" (Washington Post, August 6, 2010).

This reportage notwithstanding, Canadian and American interests in the Arctic were not everywhere uniform, while Russian interests were not necessarily oppositional. Indeed, quite the reverse. Although fact that the incident was portrayed in terms reminiscent of the Cold War, this was more a matter of convenience than reflective of international conflict (Nicol and Heininen 2011). U.S. and Russian relations within the international arena have always been seen in terms of the 'grand game', as a set of geopolitical strategies which pitted east against west. And to be fair to the media, some of the articles in which the unfolding events were reported began to deconstruct the political rhetoric and to expose it for what it was: a gloss of a complex chain of events, circumstances and influences in which the Arctic was becoming integrated into the global economy, and its cultural and political context. After all, the international North had been constructed by co-operative agreements concerning fauna, flora, pollution and environmental protection throughout the 1980s and 1990s (Heininen and Nicol 2008).

None of these agreements, and their supporting academic and policy-makers discourses, however, really offset the fact that the region of the circumpolar North was increasingly portrayed by the media to be a series of 'national Norths' by the end of the first decade of the 21st century. A geopolitical discourse which reified

strong state and its national interests was on the rise, particularly after the events of September 11, 2001. The latter was a process which began in earnest, in the 21st century, and arguably culminated in the summer of 2007. The media reports generated by the flag-planting incident, which followed over the next few years, attempted to explain the national context of the Arctic region in raw, geopolitical terms. But, as Dittmer (2011) reminds, the Arctic is a place where the leading narratives of globalization and neoliberalism intersect with a burgeoning neo-realism. The Arctic has increasingly been described as an economic resource frontier, framed through Arctic states' interests, all intent upon.establishing a geo-economic context for resource extraction primarily because melting ice had effectively unleashed new potential. Since 2007, this type of assessment has been increasingly common in all forms of media. In this way, media discourses created a new and popularized account of the North as an 'icy treasure trove' where nations waited in the wings to stake claims to the Arctic Ocean, in what had potential to be a protracted and conflicted process—a new 'Cold War' as the media called it.

Still, not all of these discourses were really new. Many had been recycled from colonial and Cold War histories, and were generally consistent with the way in which governments, especially the Canadian Government, had reacted to Arctic challenges in the past. Although the Canadian Government at times seemed to infer that a robust military presence was needed in the Arctic to protect Canada's interests from being stolen away by competing states, Lassaere, Roy and Garon suggest instead, that "strong rhetoric about a reportedly threatened sovereignty and the need to defend it through an increased military presence," ostensibly because it could "thus provide politicians with an increased popularity among the military and the electorate, especially in Canada and in Russia. Leaked cables from the American Embassy in Ottawa seem to attest to this idea that the Canadian government does not believe there is a threat to Canada's sovereignty in the North, and that rhetoric is developed merely for electoral reasons"(Lasserre, Roy and Garon 2012, 55). Made doubly imperative by the escalating pace of melting ice, and the perceived quickening status change in natural Arctic environments, the urgent message relayed by the media message mimicked their assessment of natural processes themselves: the melting medium determined the message.

Naturalizing the News

Current geopolitical discourse in the Arctic thus both reflect and promote a naturalized understanding of international relations—that is to say it suggests that there are natural forces "demanding" specific and inevitable political and economic actions and outcomes which are based upon uncontestable imperatives. Even at the most basic level, however, there is a false tautology inherent the belief that climate change represents an example of what can only be called a 'new' environmental

determinism, as policy-makers are fond of arguing. Indeed, Byers has suggested that: "The huge irony is that we are only talking about this because humanity has burned so much oil and gas that the ice is melting…It could be a vicious cycle: Climate change is opening up the Arctic to oil and gas drilling, which almost certainly will cause more climate change" (Washington Post, August 6, 2010).

It is instructive to look more closely at how the discourse of Arctic climate change has influenced geopolitical competition and international relations in terms of the way in which national interests framed by global warming discourses clearly construct an "Arctic under siege" and an Arctic treasure trove. Indeed, it hardly bears repeating that today's push button issues in the geopolitics of the Arctic region are mainly derived from specific constructions of threat and risk, especially from the perceived threat posed to environmental and national security by the continuation of Arctic warming and melting ice. The latter are seem in terms of 'business', and its potential to open up competing claims to the Arctic Ocean, as Arctic waters melt and expose new shipping lanes and resource-rich territory. Because of this understanding, the fact of climate change has been transformed into a set of strategic scenarios which have already begun to reshape Arctic states' interest in northern territories and policies, and the approach they take to Northern security. As Young (2012) suggests, sustainability as a goal has been replaced by the idea of management and containment of Arctic resources with obvious policy-making results.

While initally Arctic climate change prompted international co-operation and the construtcion of frameworks for definment of common cause, more recently it evokes more nationalistic sentiments, including the desire to define and capture enerygy and strategic mineral resources. This new geo-economic concern about climate change affects how states perceive Arctic issues in international relations. There is now a heightened interest in the sovereignty over Arctic waterways, not in terms of whales, fisheries and maritime mammals, but in terms of their potential for transit, shipping and resource accessibility.. There are also disputed understandings of territoriality brewing between various subsets of nations: Canada and the United States, Russia and the international community, Canada and the EU There are also disputes between Canada and the United States, Russia and the international community, Canada and Denmark and Canada and Russia with respect to potential maritime claims or existing ones.

Widening the Arctic Neighbourhood

These interests have widened the international North in terms of reportage, media coverage and even governmental debate. It has also 'widened;' the definition of the Arctic region itself. It is important to understand, that as the current 'Arctic

story' developed, the general pattern of international relations demanded that more, non-Arctic states enter 'the fray'. As emphasis changed from land to water, the medium for understanding international relations became literally more fluid, and as such, less precisely defined. International politics is, after all, about hegemony, and thus as the Arctic rose in its international political significance, so did the interests of non-Arctic powers in the region. While the early 21st century was about Arctic states, in the second decade of the 21st century the circle of those invested in the Arctic broadened to include what had earlier seemed a quite unlikely band: China, India, Italy, Japan, Singapore and South Korea. By 2012, China's interest in the region was clear. The National Post added urgency to its potential involvement in Arctic geopolitics by making China's aspirations 'news'.

Even though it has no Arctic territories, China wants a place at that table. Zhang Junsai, the Chinese ambassador to Canada, told a Montreal audience on Wednesday that his country should be allowed to be there. .Of course, China wishes to be an observer," he said.

> The Arctic region may contain as much as one-quarter of the Earth's untapped oil and gas – reserves which will become more accessible as temperatures rise and polar ice caps melt.
>
> Meanwhile, China covets additional energy and resources to power its fast-growing economy and is already investing heavily in Canada's oil sands. That theme of energy exports is expected to play a central role in Harper's upcoming trip (CBC News 2012).

In 2013, China along with several other Asian countries, was admitted to the Arctic Council as an observer state. But if this widening of the circle is a response not to the potential for gaining territory and geopolitical status as much as it is a geo-economic trend, it also was pitched by the media as a 'naturalized' event. *The New York Times,* for example, explained the move to include Asian states as follows, centralizing the role of shipping and business:

> The council's final declaration, though, recognized "the central role of business in the development of the Arctic...The Northern Sea Route, once largely a wish, has become increasingly viable during longer stretches of the summer, allowing ships traveling from Asia to Europe to traverse the Arctic in far less time than they would on the traditional route through the Indian Ocean, the Suez Canal and the Mediterranean. (Meyers 2013)

This treatment of the media concerning the issue of 'widening' reflects the fact that the currency of Arctic issues gained traction, so that the Arctic has now become an international arena for geopolitical and geo-economic concerns in unprecedented ways (Heininen and Nicol 2008). The institutions and organizations which

originally constructed the circumpolar North may not have desired such an outcome, but in many ways the institutionalization of polar issues and the international context of maritime boundary-making has made it so. In this process, the 'spin' created by the press and politicians alike, has drawn upon certain sets of images and understanding, so that each Arctic nation, and non-Arctic nation, accesses those which reinforce their own geopolitical and geo-economic interests. The result is a complex mosaic of issues, institutions, interests and politics which mirror, more generally, the broader geopolitical landscape of the 21st century, but which also see states promote themselves as major players within the region, and one which sees states define state-oriented issues as the key issues of the North. This includes the promotion of economic and business interests, military security and territorial control. Canadian and American responses highlight this process.

Canada: True North Strong and Free

If the international context for understanding the Arctic had widened, as a result of international interest, this interest was reframed by the Canadian press. As we have already seen, since the early 21st century, the Canadian Arctic is represented by most popularized Canadian geopolitical accounts as a frozen testing ground for the Canadian state, especially its ability to marshal significant geo-economic applications focused on making resources available and accessible. In this sense, today, as in the past, it is seen as a resource frontier. Indeed, reporting on the increasing boundary-making activity in the Canadian Arctic, one CBC report noted that: Canadians have always tended to regard the northernmost reaches of their land as an integral, if isolated, part of the country. The vast and frozen Arctic archipelago even gets its own reference in the country's national anthem: "The true north, strong and free." (CBC News, August 10, 2010).

Most Canadians, however, do not live in the geographical North, nor have they visited it. The relationship is thus an abstract one, and as such is ripe for geopolitical manipulation. This manipulation has come, at least in recent years, in the representation of the North as a field for military intervention in order to protect Canadian sovereignty, or as an empty and frozen frontier ripe for resource exploitation. It is because the circumpolar North was for most places beyond the edges of population ecumene and far from economic centres, that the concept of "frontier" in the North was cultivated, and its role of 'frontier' is generally constructed from the lens of 'exploration'. But its frontier status is more than this, as it references both the 'gold rush' saga and modern accounts of untapped riches. This reinforces the idea that the North is a physical challenge to be overcome, or that the North as a geopolitical context in that it is a 'naturally geostrategic' place. Each of these lenses, however:

> assess the region from the perspective of its potential importance in a broader world. Moreover, the broader world did intrude: during the Cold War, the North became a strategic frontier for North American security concerns, as the Distant Early Warning or D.E.W. Line was constructed - to warn U.S. and Canadian military of potential nuclear weapons attacks from the Soviet Union. The construction of the D.E.W. Line during the Cold War placed the circumpolar North, principally the Canadian Arctic, in the position of the first line of defence between the superpowers. Since then, of course, this border has diminished in importance as a front against the other Cold War superpower, namely the USSR. Today, although no D.E.W. Line now exists, there are layers of military security —coverage in the North American Arctic, organized by treaty and agreement, as well as national security concerns. David Wilkins, [former] U.S. Ambassador to Canada, observes, for example, that the United States' —military security in the North today includes —Canadian Forces Canada Command [which] is responsible for domestic security but is also responsible to work together with U.S. Northern Command for the combined defence of the North American continent. Additionally, NORAD (North American Aerospace Defence Command), a fifty-plus-year binational treaty has adopted, in addition to its aero-space defence role, a new maritime warning responsibility to continue to build Continental Defence (Nicol and Heininen, 2008).

Indeed, the new legacy is very 'post-Cold War' even though it is reminiscent of Cold War rhetoric. For example, in 2010, the Canadian Government revved up its concern with military security in the Arctic. It also made a number of promises regarding military surveillance of the North. These were focused upon expanding human and technological surveillance and apprehension capacities and enhancing search and rescue capabilities, and shifted patrol responsibilities from the Canadian Coast Guard to the Canadian Navy. In May of 2012, however, the Canadian Government announced that its fleet of armed vessels for Arctic patrol would be delayed by at least three years: "The Defence Department had been expecting to take delivery of Canada's first of between six and eight Arctic Offshore Patrol Ships in 2015. But documents tabled in the House of Commons on Tuesday show the timeline has been pushed back to 2018. In addition, the $3.1-billion project is now expected to cost $40 million more than anticipated" (Berthiaume, 2012).

In one way, this security motif is very '2010'. Since then, increased militarization of the Arctic has not been forthcoming despite its rhetorical importance. Moreover, although increased transits raise potential for increased human tragedies and environmental destruction, the 'sovereignty threat' imposed by

such transits has yet to materialize, just like the promised ships, planes and ports. China has been accepted as an observer state in the Arctic Council, suggesting that tales of 'conflicted' Asian challenge are overblown. Instead, the Canadian government has reopened the region for resource development— specifically, but not exclusively, for oil extraction. This involved reframing geopolitically 'strategic' issues as geo-economic ones. In 2008, for example, the Canadian government's 'McCrank Report' recommended significant changes to comanagement processes in the Mackenzie Valley area, to streamline environmental assessment. It promoted development strategies in tandem with the Canadian Northern Economic Development Agency's renewed focus on promoting business and development opportunities in the North.

So if the geostrategic importance of the Arctic is taking a backseat, geo-economic issues certainly, since 2010, are not. By 2012, resource development had become a second important 'prong' of the climate change discourse, which, until now, had focused steadily upon the opening of transportation routes and challenges to Canada's singular control over the Northwest Passage and the North as a potential icy treasure trove. The Canadian Government has created structural capacity for Northern development initiatives, and most recently, the press has reported that oil exploration and extraction are looming on the horizon, encouraged by Ottawa and its northern development mandate:

> Ottawa has placed 905,000 hectares of the northern offshore up for bids, clearing the way for energy companies to snap up exploration rights for an area half the size of Lake Ontario. The scale of the offer indicates eagerness in the oil patch to drill for new finds in Canada's northern waters less than two years after such plans were put on hold following the BP spill in the Gulf of Mexico and a major Arctic drilling safety review.
>
> The Arctic exploration auction resumes as the Harper government is promoting greater development of the country's resources. It has taken steps to speed regulatory approvals for major energy projects such as the proposed Northern Gateway pipeline, promising to limit the ability of environmental groups and other opponents to block or delay new developments. The prospect of further drilling fits squarely with that mandate, said Jason MacDonald, spokesman for John Duncan, Minister of Aboriginal Affairs and Northern Development Canada, which oversees the northern land auction" (Vanderklippe 2012).

Indeed, in conjunction with its focus on releasing hectares for oil exploration, the Conservative Government has also recently implemented some massive changes to

environmental regulation requirements for megaprojects such as oil extraction and pipelines. This makes 2012 the era of resource development and investment, all other considerations taking a back seat.

All of this suggests that, for Canadians, the geopolitical significance of the Arctic has been shifting over the past two to three years, from a discourse centred on sovereignty and surveillance, to a discourse centred on development. This is not to say that security is no longer of importance, but that a security-developmental nexus has emerged with respect to the Arctic region. The co-constitutive nature of security and economic development is very much predicated upon specific understanding of, and predictions for, future climate change, maritime boundary and resource demand and access scenarios. Geopolitical concerns are thus filtered through economic development scenarios, and vice-versa, so that economic development, climate change and 'security' are fused in a normative discourse about urgency, threat and potential riches. In other words, Canada's security-development nexus, the narrative which conflates national security AND economic development, is now well- developed in the Arctic, in the sense that Stern and Öjendal (2010, 10) define a security-nexus as representing "the intermingling of strategies of security and development". It is not a new discourse, to be sure, but it has been given new life by new geo-economic assessments of northern mineral and hydrocarbon resources.

We can, therefore, expect this development-security nexus to be reflected in popularized geopolitical assessments of the North on an ongoing basis, and 2012, and to be combined increasingly, with narratives of threat and urgency. This is certainly the case the in Canada, where *Plan Nord*, *Northern Strategies* and military and development discourses mingle.

The North Today

By 2012, the main contours of the story which is highlighted above create a context for framing the Arctic; one which resonates with Canadians. It positions Canada as an Arctic resource broker, up against powerful external countries who wish to negotiate their way into the Arctic. In Canadian popular geopolitics, therefore, it seems, the security-development nexus revolves around the demonstration of government and state competency in the face of international interest and within the international arena. It is a continuum which stretches from militarized to developmental interests and measures. Such a narrow focus on state-centred objectives can hardly be surprising if development is generally agreed to be a "state-centric and elite-driven process" (Öjendal, 2010, 11-12), and security is defined as 'national', 'traditional', and 'state-centred'. There are, of course, other ways to understand the relationship between development and security, but these

challenge the way in which climate change has been positioned as an economic 'driver' in the North.

This uncritical acceptance of what development means and its position vis-à-vis climate change discourses in the North has itself meant that there is little real discussion, outside of indigenous circles, as to what economic development entails, and in whose interests it is undertaken. For example, in April, 2009, an international group of Inuit from all circumpolar nations adapted the "Circumpolar Inuit Declaration on Resource Development Principles in Inuit Nunaat". This document identified the relevance of Inuit experience to the development process and stresses the importance of Inuit involvement in, and benefit from, resource development processes. Yet, in his comments to the May 2012 Plan Nord Quebec Government Forum, Pita Atami, former president of Makivik Corporation observed that: " The Government of Canada's Northern Vision sees the great economic potential of the vast northern or Arctic natural resources as key to Canada overall economic future. The "North of 60" definition of the north on which the government of Canada uses which is confined to Canada's 3 territories does not reflect the reality of the North and of the Arctic" (Atami, 2012).

For Canadians, then, the push-button Arctic issues revolve around security and development, through demonstrable state competency—either in military ways, or in ways which speak to the strength of the state to allocate and control resource extraction. This is, of course, a realist perspective, or rather reflects the way in which the state identifies Arctic issues through realist filters which promote specific policy initiatives (or lack thereof). It would be fair to say that this is certainly not the first time the role and competency of state has come to be the marker for Canadian interests in the Arctic, but it is a significant departure from events during the 1980s and 1990s.

The 'American' Arctic

The American perspective on the Arctic is seen as considerably different from Canada's in that Americans challenge some of the core boundary delimitations and indeed the Canadian status of the Northwest Passage (NWT). Indeed, while Canadians fretted about their "Arctic Sovereignty" during the Cold War, Nixon's presidential Directives for the North made it clear that the U.S. was concerned about their 'national security' in the region.. The National Security Council's memorandum of December 22, 1971, for example, presents an extremely short, but to the point statement concerning America's interests in the region. They were both developmental and security-oriented: The President has decided that the United States will support the sound and rational development of the Arctic, guided by the principle of minimizing any adverse effects to the environment; will promote

mutually beneficial international cooperation in the Arctic; and will at the same time provide for the protection of essential security interests in the Arctic, including preservation of the principle of freedom of the seas and superjacent airspace (U.S. 1971).

The 1971 statement is really not so different in terms of the way in which the Arctic has become a new and iconoclastic epicentre for a new security-development nexus, except of course, that the climate change imperative is lacking. In 1971, the Cold War and oil development in Prudhoe Bay were the drivers for the crafting of a bifurcate 'security-development' motif. Today, security and development interests remain the most important prongs of a U.S. interest in the North, reiterated in the 2009 Presidential Directive offered by the outgoing Bush Administration:

Thus for the U.S., despite disagreement concerning the status of the Northwest Passage, or the lack of ratification of the UNCLOS Treaty, the Arctic is also defined by a security-development nexus in which state and national interest defines geographical context. It remains a resource and defence frontier waiting to be incorporated into the national economy in ways which support the existing large scale military-industrial complex (U.S. 2009). This is rather interesting in light of recent U.S. rejection of the 'Arctic 5' process and its renewed emphasis upon the Arctic Council and the inclusion of indigenous peoples.

By 2008, Borgerson's (2008) piece on"Arctic meltdown," highly inaccurate as it was, created the context for justifying a sense of imminent threat in the American North while for Canadians the military rhetoric of the national government remains somewhat of a smokescreen for a less robust security and sovereign agenda In the U.S. the indigenous rights and common co-operation discourse remains as a cover for the harder edges of national-security documents such as the most recent Presidential Directive. Moreover, the U.S. balks at signing the UNCLOS Treaty which authorizes the international approach to regional boundary-making, while arguing for a regional process of representation under the auspices of international law.

The Common Agenda of the North American Arctic States

What both the Canadian and U.S. approaches have in common is the way in which climate change has become an imperative for an embedding of security within the developmental debate, and vice-versa. This may, indeed, be a broader way of understanding the Arctic for most Arctic and perhaps even non-Arctic nations. It is an approach which demands state interests be identified and served, and which reasserts the right of states to access resources under dynamic conditions of instability. Indeed, instability demands the state.

The role of the state is not, of course, specified by natural laws, although the use of naturalizations to argue for the presence of the state has resurged as the prima facia argument for current geopolitical machinations in the North. Melting ice demands specific technological responses, it may be true, but these responses are selected as appropriate with reference to political choices and political economies. It is always appropriate to ask in whose interests these responses are undertaken. The problem is that in the Arctic today, the justification for state-centred responses are self-referencing to the level of the state with little consideration of the other interests or stakeholders. In a world in which economies are increasingly regionalized, in which globally-embedded and empowered local economies have become the order of the day, why do we continue to cast the Arctic as an icy treasure trove whose bounty is, for all and sundry. Those with the most invested in the region, the inhabitants themselves, have been increasingly marginalized by this naturalized discourse which leaves little room for contestation by virtue of its reliance on broad and invisible forces which strengthen state imperatives and corporate agendas.

While this is not an earth shattering conclusion, it is one well worth considering if simply because the geopolitical underpinnings and justifications for action always have been, over time, embedded in rather fraught assumptions about what 'normal' is. Geopolitics is a social construction based upon our understandings and perspectives of regions and processes, and given the fact that so few North Americans have visited, or even studied to North, current popular and even formal geopolitical strategies cannot be justified by anything but by how they reflect non-Arctic social processes, beliefs and relations. It is well to be mindful of this when we create opinions about the way in which northern development should proceed, and the way in which those peoples who live there should be given greater control over their own economic and geopolitical fate.

References

Atami, Pita. 2012. Ne Perdons Pas Le Nord – The North Matters: Visions of Governance For Nunavik Enhancing Relationships With Aboriginal Peoples. May 2-3, 2012 – Quebec City, Canada www.forumplannord.com/.../pita_atami_-_notes_for_forum_plan_nord_-_may_203 _2012 _quebec_city..docx

Berthiaume, Lee. 2012. Armed Arctic vessels face delay in latest procurement setback. Nunatsiaq News, May 8, 2012. http://www.nunatsiaqonline.ca/stories/article/65674armed_arctic_vessels_face_delay_in_latest_procurement_setback/.

Borgerson, Scott G. 2008. Arctic Meltdown: The Economic and Security Implications of Global Warming. *Foreign Affairs*, March/April 2008.

CBC News. 2009. Battle for the Arctic heats up. February 27, 2009. Available online at: http://www.cbc.ca/news/canada/battle-for-the-arctic-heats-up-1.796010

CBC News. 2012. China seeks Arctic Council observer status: Canada to lead Arctic organization for two years starting in 2013. Feb 01, 2012 5:55 Available online at: http://www.cbc.ca/news/canada/north/china-seeks-arctic-council-observer-status-1.1250638

CNN World. 2007. *Russia plants flag on Arctic floor. August 2007*. Available online at: http://www.cnn.com/2007/WORLD/europe/08/02/arctic.sub.reut/index.html).

Dittmer, Jason et.al. 2011. Have you heard the one about the disappearing ice? Recasting Arctic geopolitics. *Political Geography* 30 : 202-214.

Dodds, Klaus 2010. Flag planting and finger pointing: The Law of the Sea, the Arctic and the political geographies of the outer continental shelf. Political Geography. Volume 29, Issue 2, February 2010: 63–73

Heininen, Lassi and Heather Nicol. 2008. Canada and the New Geopolitics of the North Pacific Rim". In: Seeking Balance in a Changing North. The Proceedings Papers from the 5th Northern Research Forum Open Assembly in Anchorage, Alaska, September 24th27th 2008. Plenary Session 1: The Future of Northern Cooperation. NRF website: www.nrf.is / Books & Publications.

Lasserre, Frederic, Jérôme Le Roy, Richard Garon. 2012. *Is there an arms race in the Arctic?* Journal of Military and Strategic Studies 14 (3): 1-56.

McCrank, Neil. 2008. Road to improvement: the review of the regulatory systems across the North. Ottawa: Indian and Northern Affairs Canada.

Myers, Steven, 2013 Arctic Council Adds 6 Nations as Observer States, Including China. New York Times. Published May 15, 2013. http://www.nytimes.com/2013/05/16/world/europe/arctic-council-adds-sixmembers-including-china.html?_r=0

Nicol, Heather N. and Lassi Heininen. 2008. Networking the North: Cross Border Connections and the New International Circumpolar Geopolitics. *Southern Journal of Canadian Studies* 2(1): 11-26.

Nicol, Heather N. 2010. Reframing sovereignty: indigenous peoples and Arctic states. *Political Geography* 29:78-80

Inuit Circumpolar Council. 2011. A Circumpolar Inuit Declaration on Resource Development Principles in Inuit Nunaat. www.iccalaska.org/servlet/download?id=80.

Stern M and J Öjendal. 2010 Mapping the security–development nexus: Conflict, complexity, cacophony, convergence? *Security Dialogue* 41(1): 5–29.

Struck, Doug. 2007. Russia's Deep-Sea Flag-Planting at North Pole Strikes a Chill in Canada. *Washington Post Foreign Service*. Tuesday, August 7, 2007. Available online at: http://www.washingtonpost.com/wp-dyn/content/article/2007/08/06/AR2007080601369.html

United States. National Security Presidential Directive 66. 2009. http://www.fas.org/irp/ offdocs/nspd/nspd-66.htm.

United States National Security Decision Memorandum 144. 1971. http://www.nixonlibrary.gov/virtuallibrarydocuments/nationalsecuritydecision memoranda.php

Vanderklippe, Nathan 2012. Reviving Arctic oil rush, Ottawa to auction rights in massive area . *The Globe and Mail.* Wednesday, May 16, 2012. Available online at: http://www.theglobeandmail.com/news/politics/reviving-arctic-oil-rush-ottawa-to-auction-rights-in-massive-area/article4184419/

Vongdouangchanh, Bea. 2006. *Cabinet Waiting for Defense Department's 10-Year Arctic Miitary Plan: O'Connor.October 16, Policy Briefing Canada's North. Available online at www.hilltimes.com/pb/view/2006-10-16.*

Young, Oran. 2012. Arctic Politics in an Era of Global Change. *Brown Journal of World Affairs,* XIX (1).

Chapter 13

On Climate Change as a Relevant Geopolitical and Security Factor in the Circumpolar North

Lassi Heininen

Introduction

Rapid changes in climate, whether global warming or regional cooling of climate, are part of a category of global environmental problems. Climate change is a universal phenomenon and environmental problem globally, regionally and locally, and thus a global environmental problem. It also seems to be some sort of "omnipotent" factor in environmental security, causing people to be concerned about the environment they see around them. Climate change impacts upon people(s) and societies by fostering a sense of insecurity, even their "everyday" security. It has also caused governments to be worried about the future of their countries due to the fact that climate change will help to determine national interests, such as environment and economy. Further, because of its existing, as well potential impacts, climate change also has implications for the recognition of, and concern for, access and control of strategic natural resources. The latter are closely linked to national interests such as defence, and even state sovereignty. Finally, there is the uncertainty, meaning that we face conditions of climate change and its multi-faceted impacts and side-effects.

Following from the above, it is possible to suggest that climate change is a new kind of factor in security discourses, particularly in the discourse of environmental and human security (e.g. Huebert 2001; Hoogenson 2005; Heininen 2006), or that climate change has possible security implications (Borgerson 2008; Gleditsch 2008, 706). There are also denials: these argue that there is no evidence for the claim that climate change is a security issue (e.g. Vaahtoranta 2007; Korppoo 2008). Despite the latter, however, because of the obvious and multiple impacts of recent rounds of global warming, it makes sense to talk about climate change in the context of security studies, and to analyze what kind of security impacts climate change might have. Academically this is an interesting exercise, because such discussions might potentially bring something new to security discourses. Indeed, recent discourse on northern security (or securities), in the early-21st century attempts to include all the relevant aspects of the discourses on environmental security and human security in

order to draw a holistic picture and comprehensive agenda of a "new" Northern security (e.g. Heininen 2007a; Heininen and Nicol 2007). One question still remains, however, even in such a broad-based and inclusive discourse; namely, whether climate change can, or is even able to, create a change in the "problem definition" of security premises and paradigm(s). This is because problem definition is a very relevant research question *per se*, in discourses on the environment and environmental politics (Haila 2001, 17-20).

I have written elsewhere, and earlier, about environmental issues, problems and politics. This work includes study of the relationship between the environment and security, and the problem definition of security discourse(s) and premise(s) in general, and in the case of nuclear safety more specifically (Heininen 1990, 1991, 1994; Heininen and Segerståhl 2002). I have also previously discussed climate change as a relevant geopolitical factor in the circumpolar North influencing the geopolitical situation of Northern regions in the 21st century, and have defined climate change as a new special feature of northern security. The latter work emphasizes the idea that the impending threat of climate change, along with energy security scenarios, are reason enough to talk about a new northern security (Heininen 2006 and 2007a). Indeed, this is necessary if we are to challenge the dominance of traditional security discourse, and to be better prepared to face new, asymmetrical challenges emerging in the wake of climate change. It is also necessary to apply new approaches, like that of environmental security or transportation security, both of which have already been emphasized as important by scholars as well as policy-makers (e.g. Gisladottir 2007; Moe 2007; Diesen 2007).

In this chapter, I continue this discussion of security studies by (re)defining climate change as a new kind of security factor. My hypothesis is that climate change has a significant security dimension because of the nature of its physical impacts and the uncertainty and unpredictability these impacts generate. Furthermore, this issue has great potential to cause change(s) in the problem definition of security discourses, to challenge current security premises and even to topple the normative security paradigm, a point which I have already tentatively discussed elsewhere (see Heininen 2008b).

The chapter begins with a brief definition of climate change as an unequivocal phenomenon and identifies its obvious impacts both in general, and particularly within the circumpolar North. Next, it describes how climate change is thoroughly changing the geopolitics of, and influencing security in, the circumpolar North. It then briefly describes the main security discourses and concepts, particularly those of environmental security and human security. Next, the chapter turns to a discussion of climate change in a security context, identifying existing, potential and possible security implications of climate change in general. Finally, it discusses

climate change as a security factor in the Arctic region, and as a special feature of northern security, followed by a short conclusion.

Unequivocal climate change with its obvious impacts in our lifetime

Natural disasters, or natural hazards of non-human origin, such as droughts, heavy rains and floods, storms and big storms (hurricanes, tornados and typhoons), earthquakes and tsunamis, forest-fires, soil erosion and loss of habitat have always been with us (see, Diamond 2005. All of these have had real impact upon people and societies threating people and socities. Extreme weather conditions and big storms, particularly tropical hurricanes have not necessarily increased in frequency, in recent years, but they have certainly strengthened and become more dangerous and unpredictive over the last 25-30 years (e.g. Financial Times April 22-23, 2006; HS 8.9.2008).

Moreover, there are increasing intense interrelations between the two systems: climate and people. As noted, climate change in the early-21st century is now known to strengthen and accelerate extreme weather conditions and natural disasters, such as tropical hurricanes, and this has meant growing human, social and economic losses, In 2007 alone, for example, there were about 950 natural catastrophes causing damage of approximately 34 billion euros worldwide (HS 2.1.2008). Since these impacts are cumulative, this might mean that in the future there will be more and severe global environmental problems.

The media has portrayed climate change as a new global phenomenon in the early21st century. Climate change has also been much discussed within the scientific community, as well as among policy-makers, and between the scientific community and policy-makers as well as their respective publics. This was not the case a few years ago, however, when there was on one hand, lack of interest among the publics and politicians, and on the other, scepticism on and suspicion about the existence of climate change among scientists and politicians (e.g. Anchorage Daily News, November 21, 2004). The year of 2007 seemed to be some sort of breakthrough: The United Nations' Intergovernmental Panel on Climate Change (IPPC) agreed and launched its comprehensive report on climate change with serious warnings on real threats of global warming. The Nobel Prize Committee by awarding the Nobel Peace Prize to IPPC and to the former US vice-president, Al Gore, clearly stated that climate change was a serious issue, even a threat, to the world and to human kind (International Herald Tribune, Oct. 13-14, 2007). The 2007 award did not, *per se*, extend the definition of peace, which had happened a few years earlier, but due to the significant degree of publicity which surrounded it, the award made known, and perhaps even manifested, the idea that climate change is a threat to

world peace. This itself was significant in identifying and promoting the concept of comprehensive security.

This climatic 'awakening' and movement has said to have become a "brand-new game" among world leaders, as the following headlines and questions indicate: "Who would become the greenest," who are among "Green Leaders" and who are among "Green Laggards" (Guterl and Sheridan 2008)? What is the "greenest" nation, which is ready to push governing to go green and turn governance upside down and speed up efforts to create new energy technology and economy? (Newsweek, May 5, 2008: 34-48; Dickey and McNicoll 2008; Theil 2009)

Climate issues were said to have become the top priority in world politics, at least until the global financial crisis in the autumn of 2008 on the one hand, and on the other the new waave of international terrorism at the turn of the 2010s started. This means that today, in spite of all the rhetoric about its importance in world politics, climate change is not singled out as the top priority, but has to share this priority with a few other crises. Yet actually, these two issues are keenly connected to each other, as well as to international terrorism (the continuity of insurgents in Afghanistan and Iraq has kept terrorism high on the list).

There are great expectations, such as the 'International Treaty of the Century', as well as much less encouraging messages, such as the weak compromise of the UN Climate negotiations in Bali in December 2007. There is also the UN negotiations of the Kyoto Protocol II (with the *grand finale* in Copenhagen in December 2009) to decrease CO2 emissions and control, even stop, the increase of global warming. There is still some reason to be worried however, since at the same time climate change, which is a rapid and cumulative phenomenon, has been accelerated and seems to be ahead of schedule, as the scenarios of 4.5 degrees Celsius warmer climate in the end of this century indicate – and two degrees has said to be a risk (IPCC 2007). No wonder that there are sceptical voices, such as, all this is "too little, too late"; that the two degree promise is "a miracle" (Begley 2009); and that most of the carbon that has already been released into the atmosphere "will hang around for another 1,000 years". Therefore, diplomacy would hardly be successful enough for to "put global warming back in its box" (Guterl 2009).

All this indicates that there is hardly any more a need to convince people or decision-makers on the fact that climate change does exist. Indeed, climate change is no longer only based on scenarios or a matter of numbers from computer models, it is reality. And it is much, particularly due to its rapidity, caused by human activities, which fact also accelerates the problem. It is not only global and rapid but cumulative, and consequently, threatens peoples, societies and nations, the whole human kind. For this chapter the main conclusion of this is that "Warming of the climate system is unequivocal" and its physical impacts are already known, recognized and obvious (IPCC 2007,: 2; also Begley 2007).

Among these impacts are first, melting of sea ice (particularly in the Arctic Ocean), melting and rifting of glaciers (in Greenland, the Canadian North, the Alps, the Himalayans and the Antarctic), and as consequence, flooding and rising sea levels, which are potentially fatal in many coastal areas and islands (such as the Maldives and many atolls in South Pacific). The second large consequence will be heavy rains and bigger storms, along with coastal erosion, which is increased by a higher frequency of big storms (like for example, in Alaska and North Siberia), floods (for example, in Central Europe) and drought (for example, in Darfur, Africa). Third is the thawing of permafrost and as a consequent, release of methane gas (CH4) while fourth, is the possible scarcity of fresh water if the ice sheets of Greenland and the Antarctic melt. Among consequences of these physical effects will be destabilization and crushing of human-built infrastructure, buildings, industrial facilities, pipelines, roads and airports built on permafrost (particularly in the Russian North); new kinds of migration and evacuation of coastal communities and inhabitants becoming environmental refugees; changes in traditional diet among indigenous peoples and other severe problems in traditional livelihoods. Furthermore, there will also be potentially indirect, and cumulative, harmful effects of global warming on daily life, such as on one hand, the spread and mobility of pests, and on the other, more and severe diseases and viruses, such as malaria.

Depending upon your position and point of view, there are also positive impacts of climate change to be dealt with, particularly in cold and ice covered regions and regions with permafrost, such as a better access into new natural resources (for example in Greenland), better conditions for agriculture (like for example in the Russian North), opening of new sea routes (particularly trans-arctic sea routes through the Arctic Ocean) and fewer obstacles for military operations (particularly in the Arctic Ocean). Many of these have, however, their "dark sides". For example, due to the increased utilization of natural resources there will be greater levels of traffic in maritime areas of the circumpolar North, and due to more traffic, there may be more pollution, higher risks of severe accidents, such as oil spills, and consequently, more environmental degradation and worse living conditions – this is a sort of paradox. Because of this there is a need for stricter environmental regulations and more stringent restrictions on a military presence to ensure state sovereignty. Finally, there are the uncertainties of climate change, such rapid alternations in ocean circulation and sea currents, and consequently, massive climate shifts.

Though all this might sound new and dramatic, and is certainly much discussed today, climate change is not a new phenomenon. As a global phenomenon, climate change has always existed: there is no such thing as a stable climate over time, but only climatic changes which have been mostly big and slow, like waves within centuries or even over thousands of years. Moreover, the theory of the "greenhouse effect" has been understood since the 1890s (McCormick 2001: 280). Furthermore,

in the 1950s the first news about the thin sea ice of the Arctic Ocean was published in the *New York Times*, and in the 1960s there were first reports on both rising global temperatures, and the first official recognition by the US Presidential Report that this could have real consequences.

What is very interesting is that even at this early time, the report claimed that "climate warming could be caused by human activities". Indeed, climate science was brought into a new era in the 1960s and 1970s, both by new technology and the birth and growth of international environmental politics, including politics of the atmosphere (Nilsson 2007: 64). In the mid-1980s the greenhouse effect, as well climate change, became "a significant international policy concern" (McCormick 2001: 280; also Heininen 1990). In the meantime, indigenous peoples, such as the Inuit and the Cree, started to make observations on regional environmental changes and compare them with traditional ecological knowledge (Fenge 2001).

In the history of the human kind there are several examples of the collapse of societies due to natural catastrophe, climate change or over-utilization of natural resources, or the combination of these two or all three. Diamond (2005) has identified the twelve "most serious environmental problems facing past and futures societies," which have often led to a collapse of societies in the past. These are loss of habitat and ecosystem services, over-fishing, loss of biodiversity, soil erosion and degradation, energy limits, freshwater limits, photosynthetic capacity limits, toxic chemicals, alien species introductions, population growth, human consumption levels and climate change like for example, the disappearence of the Norse settlements in the southern part of Greenland in the 14th century.

What is, however, new here, is on the one hand, the speed of warming and on the other hand, its expansion. Indeed, current climate change is both rapid, and easily exceeds our original expectations: it is global and affects the climate of the whole earth and its ecosystems. And though climate change is a global phenomenon, it is particularly problematic in the developing world among the poor and poorer countries of Africa and Asia - the 'innocents' – as well as in areas with seasonal droughts where residents are still based on traditional livelihoods. It is also problematic for small ocean island states in the Indian Ocean and the Pacific. Moreover, climate change is a particular problem in Asian and African mega-deltas "due to large populations and high exposure to sea level, storm surges and river flooding," such as Bangladesh, in (low) ocean islands with "high exposure of population and infrastructure to projected climate change impacts," such as the Maldives in the Indian Ocean, and Tuvalu, Vanuatu and other atoll islands in South Pacific (IPCC 2007).

The northernmost regions of the globe, like the circumpolar North have also faced the reality of climate change, through "…the impacts of high rates of projected warming on natural systems and human communities" (IPCC 2007: 9).

Further, climate change in the Arctic region is less and less explainable by "scenarios" and computer models, and more and more a reality. It was the Arctic Climate Impact Assessment Report, published in 2004, which ended any remaining hesitation or speculation about whether climate change is real or not, by saying that "…the Arctic is now experiencing some of the most rapid and severe climate change on earth," since the Arctic climate is warming rapidly and larger changes are projected (ACIA 2004: 10 and 22).

Indeed, the key findings of the ACIA Report are many. First, climate change has worldwide implications, since changes in Arctic climate and their consequences "…affect the rest of the world through increased global warming and rising sea level" (ACIA 2004: 10). Next, due to rising temperatures, are changes in the physical climate system, such as melting of glaciers and sea ice, a resulting rising sea level and ocean salinity change. Associated with this physical change is declining snow cover and thawing permafrost, and increased river flows. Third, there are impacts on natural systems like wetland changes, shifts in vegetation zones and changes to diversity of a variety of animal species. Fourth are impacts on societies, particularly communities and facilities in coastal areas, which experience loss of their traditional culture, declining food security, and disrupted transportation, as well as the destruction of buildings and other infrastructure, due to increasing exposure to storms, melting of sea ice and thawing of permafrost. Indigenous peoples, in particular, are said to be silent victims of climate change (Minority Rights Groups International 2008), because they face major cultural changes and economic challenges. Finally, to some degree there are some impacts which may be positive, and among these are expanding marine shipping, enhanced marine fisheries and agriculture and forestry, and in general increasing access to natural resources, such as offshore oil and gas (ACIA 2004).

Since 2004 there are also some new findings on severe impacts or consequents of climate change in the North, such as a release of methane, another, even stronger, greenhouse gas due to melting of permafrost. Further, the pace of change seems to be excellerating and has the real potential to exceed expectations. We might be even "30 years 'ahead of schedule'" meaning that "the projected future of the Arctic is today" (Serreze 2008/2009). For example, when the multi-year sea ice of the Arctic Ocean was about four million square kilometres in area in September 2007, the thinnest so far, while it used to be, at least in decades past, about seven million square kilometres in area. In addition, in the summer of 2007, the Northwest Passage was for the first time ice-free. It is well to remember, however, that although the warming of the climate system is obvious and unequivocal, it is neither homogenous nor, according to scientific scenarios and computer models, not as fast in some parts of the Arctic, such as the Finnish Lapland where warming has been, so far, rather slow (Järvinen 2008).

Indeed, climate change entails a sort of dualism as the rapid warming of the climate also has positive affects, such as options for a longer annual navigable period in the two Northern passages and its sub-seas, and easier access to Northern natural resources. These are particular opportunities for the five littoral states of the Arctic Ocean, such as Canada and Russia (Russia has experience with navigation in the Northern Sea Routes for decades). However, these or other possible benefits do not come alone, since an increased marine transportation, particularly that of oil and natural gas in northern seas means a growing risk of accidents by large oil tankers, and in general, bigger and more severe environmental risks. Climate change might also bring other kinds of activities or side effects into the northern seas, such as smuggling, drugs, human trafficking and other associated crimes (Huebert 2004). Further, melting and reducing of sea ice has dramatic changes and threatens the traditional livelihoods of northern Indigenous peoples, particularly their hunting of sea mammals, which has meant that their traditional diet is in danger (Paci et all 2004). This poses major challenges for human security in the North, as well as major risks to northern communities (Report and Recommendations 2006: 12-13).

All in all, therefore, the impacts of climate change on physical geography are multifaceted and also somewhat threatening, particularly for coastal and permafrost areas. Further, these impacts are multiple and are associated with many other environmental problems and stresses including long-range air and water pollution, over-fishing, the growing utilization of natural resources and extended land use, and as a consequent, "the total impact is greater than the sum of its parts" (ACIA 2004: 11). In addition of this there is the uncertainty of climate change (see, Cockburn this volume).

Climate change changing northern geopolitics

At the early-21st century the circumpolar North has witnessed a manifold growth in its geo-strategic importance and global interest toward the region due to its rich energy resources, being a sanctuary for SSBNs, flows of globalization and (global) climate change and its impacts, such as fast melting of the Arctic ice cap. These together with the fact that it is a stable and peaceful region with intergovernmental and regional cooperation and political and governing innovations have made it important in world politics. Further, the North has become in world politics, partly as a "workshop" for multidiscipline, trans-national research on the environment and climate change. A major attraction in this regard is on the one hand, the rich, and potentially extensive deposits of oil and natural gas in the region and the potential contribution of northern sea routes for global shipping, on the other. (Heininen 2005)

Supporting this is that states' activities aimed at ensuring energy security play an important role in foreign policy, and that "countries' efforts to assure access to natural resources affect security dynamics" (Proninska 2007: 227-228). Consequently, there is a growing world wide interest toward the Arctic, and the existing change retains a keen security dimension with several consequences. Not only growing interest but a significant and rapid level of transformation, actually multi-functional change, when environmental, geo-economic and geopolitical changes are occurring and the northernmost part of the globe is becoming a target area for the growing economic, political and military interests of both central governments of the arctic states and several major powers outside of the region (Heininen 2008a).

The previous geopolitical change in the entire North occurred, when, a frozen, divided and militarized North of the Cold War period started to become warmer at the turn of the 1980s and 1990s, and when the growing regional concern on the environment and the thaw of an increased international cooperation triggered a more human approach to geopolitics (Heininen 2004; Östreng in this volume). This significant transformation from confrontation into international cooperation across national borders was followed by a dramatic decrease of military tension, an increase in stability (e.g. Östreng 1999), and an emphasis on environmental protection, including nuclear safety, much due to long-range pollution (e.g. Heininen 1994).

With a view to the above, several scenarios for the future have been established (e.g. Brigham 2007), and security implications and threat pictures due to global warming have been drawn (e.g. Hubert 2004; Borgerson 2008), when trying to foresee what will happen in the Arctic region. It might, however, be a bit too early to analyze the importance of the transformation, but it is possible to estimate and identify which are among the key indicators of the change. Therefore, I prefer to identify and list the following factors and dynamics to be regarded among existing or potential key indicators of the on-going multi-functional change in, and growing global interest toward, the Arctic (also Heininen 2008a). Further, I briefly discuss climate change under each factor, particularly how climate change is impacting each of them - from a physical and societal perspective.

First, **national sovereignty** has become a sensitive issue in the circumpolar North in the early-21st century in spite of the fact that there is neither military tension nor disagreement on territorial borders, only some disputes on marine borders. There is political stability, and mutual agreement and confidence on "exclusive jurisdiction which a State may exercise within its borders" (Pharand 2009: 1). Climate change has focused attention on the importance of national sovereignty and has been understood to pose threats to the sovereignty and national

security of the littoral states of the Arctic Ocean, or even to have caused a "sovereignty crisis".

Consequently, though "absolute sovereignty no longer exists in contemporary international law" (Pharand 2009: 1) national sovereignty is seen to be endangered in some of the littoral states of the Arctic Ocean by climate change and the changing geopolitics of the North. Indeed, climate change can be, and has already been, interpreted to be a problem of control and a potential threat to national sovereignty in sparsely-populated northern regions of the littoral states of the Arctic Ocean. The issue is especially relevant for Canada and Russia, which have the longest coast lines of the Arctic Ocean and have claimed their sovereignty to include the two northern passages - Canada the Northwest Passage as well as the Canadian Arctic Archipelago, and Russia the Northern Sea Route (e.g. Degenhardt 1985; On Thinning Ice 2002; Nicol, this volume). As the first littoral state of the Arctic Ocean, Canada has stated a concern on its sovereignty and national control in the Northwest Passage due to the disagreement of the US government not to respect the state of the Passage as internal water and even more due to the fact that melting of sea ice allows more (American and other) ships to pass through the Canadian archipelago (e.g. Huebert 2002). Here climate change acts like a trigger of, or it is used as an excuse for, new national claims to expand executive economic zone, or a right to utilize natural resources or claim an option for them, and for the statement of "Use it or lose it" by the Canadian prime minister.

Second, **military presence** is for the defence of sovereignty and national security of the Arctic states. National security in the North includes all aspects of normal national defence and routine patrolling, such as the patrolling of strategic nuclear submarines (SSBNs) and long-range strategic bombers in and above the Arctic Ocean, testing of weapons and deployment of radar stations (e.g. Heininen 2004). It also includes the nuclear weapon system and its implementations, such as the missile silos in Fort Greely in Alaska as part of the US national Missile Defence (NMD) system.

Here climate change has some sort of dualism, because on the one hand, it makes it easier to have an access into northern, arctic seas which will increase the utilization of natural resources and their transportation. On the other, it creates more, and security-political, even strategic, reasons, for military patrol there.This is rather easy, since there has not been real disarmament in the Arctic as the main military structures of the Cold War are still there. For example, due to the above-mentioned threats to state sovereignty in Canada there has been a public debate whether to, and suggestions that Canada should, adopt a "hard power" to defend its sovereignty over the Arctic including an increase of control and military activities in the North (Pulsifer and Taylor 2007). Consequently, in its new Northern Strategy the Government of Canada manifests its strong presence in the North by ensuring

"the capability and capacity to protect and patrol the land, sea and sky in our sovereign Arctic territory" including to provide military presence and a new polar icebreaker (Government of Canada 2009: 9-11). Additionally, the littoral states of the Arctic Ocean as well as NATO have become more interested in non-military aspects of the security of the Arctic. The development is not, however, determined and does not necessarily mean a "new Cold War" between the Arctic states, or that the Arctic region "could erupt in an armed mad dash for its resources" as Borgerson (2008: 2) has speculated.

Third, the mass-scale **utilization of natural resources** has high strategic importance primarily based upon untapped rich natural resources, particularly oil and natural gas. Already the current total gross production of the circumpolar North is about $ 225 billion (Duhaime and Caron 2006), which is based predominantly on the large-scale exploitation of hydrocarbons for the energy needs of the northern developed countries. Roughly estimated a big share of the world's undiscovered oil and natural gas resources, i.e. approximately 90 billion barrels of oil and 1670 trillion cubic feet of natural gas and 400 oil and gas fields north of the Arctic Circle, exists as 'hidden' on the shelf of the Arctic Ocean (USGS Fact Sheet 2008-3049). The dualism of climate change is also here, when the utilization and transportation of natural resources becomes easier and cheaper more new regions are taken into use by more actors, which brings competition there and emphasises the importance of control.

Fourth, **energy security** is playing a more important role here, because energy is assumed to be "securitized," and energy security provides the basis of many relations between major powers, such as the USA, the EU, Russia, China and India. The interruptions of Russia's energy supplies with its neighbours finally "made energy security a central topic," and thus security relations became 're-energized' (Dunay and Lachowski 2007: 23 and 48). Energy, particularly energy security as a global phenomenon, has on the one hand, a growing strategic importance among national interests and for the state to assure its access to energy resources, and on the other, madeis the Arcticbecoming highly strategic in world politics and the global economy.

Here climate change is one of the main factors together with a scarcity of conventional oil, which makes the potential energy resources of the shelves of the Arctic Ocean strategically important in longer run from the point of view of (global) energy security. Even more, climate change acts here like a trigger to increase the utilization of natural resources and make energy security more strategic.

Fifth, following from the growing utilization of energy resources there is also a growing need for **transportation** and the infrastructure for transportation, such as northern sea routes, both the existing ones, the Northern Sea Route and the Northwest Passage, and trans-arctic ones, that are planned or under development.

There are also fundamental difficulties, even obstacles, what come to navigation in these passages as well in trans-Arctic sea ways. As mentioned earlier here climate change is the main factor which has already greatly impacted the assumptions and whole situation, and consequently, in northern logistics there are visions, feasibility studies and plans on how to enhance the utilization of the existing northern seas routes as well to create new ones. Real commercial utilization of these sea routes would mean a sort of revolution in global shipping and trade, and even speculations and options of this possibility are changing the reality.

Sixth, **technology** is an important factor, because the mainstream thinking, even a faith, is that an advanced, new kind of cold climate technology, as an application of geo-engineering, will solve the problems. Behind this is the theory that industrialization and urbanization, relevant parts of the modernization process, have made our societies vulnerable for accidents and environmental degradation, they have become "risk societies" as Beck (e.g. 1992) has discussed. Here the irony is that when climate change helps to overcome the (last) challenges or obstacles of the Arctic, such as navigating through multi-year sea ice, and leads us to think about 'conquering' the North Pole. At the same time, however, it creates bigger challenges, such as that of the maintaining of humanbuilt infrastructure in melting permafrost and a growing need for accident prevention, and asks for a new kind of environmental 'cold climate', or even some sort of "arctic risk," technologies (e.g. Brainstorming Meeting 2005).

Seventh, as an indicator of the impacts of globalization in northern regions as well as the inter-relations between the Arctic and the rest of the world, in addition of climate change, there are **trans-national and global environmental problems** like long-range and transboundary air and water pollution, such as Arctic haze, POPs, mercury. They create major problems, challenges and risks to communities, and consequently, the North is here both as one of the first victims and fronts, and a global scientific "laboratory" for trans-national research. As one of the main global environmental problems climate change is strongly here with its security dimension causing for example, more reasons for environmental refugees.

Eighth, the stability and peaceful situation of the Arctic region through the current **institutionalized international, mostly multilateral, cooperation,** either between governments or between non-governmental actors, such as Indigenous peoples' organizations and the Northern Forum. This is a real achievement and benefit in our unstable world and in the age of uncertainty. Taking into consideration the above-mentioned factors of national sovereignty, the utilization of natural resources and energy security, the UNCLOS and the CLCS with its mandates play here an important role, more important than any other international treaty.

Here climate change can be taken as a new kind of (geopolitical) factor to challenge the current intergovernmental cooperation. Or, it might accelerate to deepen international cooperation for Arctic environmental protection, which allows both transnational and interdisciplinary scientific and knowledge-based cooperation between different actors and different research institutions as was the epistemic cooperation for the Stockholm Convention on POPs (e.g. Meakin and Fenge 2004). This might led for example, "to a series of decisions about polar bears," such as the US listing them "as threatened and the 2006 red-listing" (Clark et al. 2008; see also the Polar Bear Agreement of 1973). Or, climate change can be used as an excuse for new national claims / submissionsto expand the right to utilize natural resourcesbeyond the external borders of the EEZs. This is much due to the fact that there is a new combination of the obvious impacts of climate change on the physical environment, and the activities required for submission of evidence within ten years of the ratification of the UNCLOS by the littoral states of the Arctic Ocean (e.g. Nicol in this volume).

Ninth, following from this **science and traditional knowledge** *per se* and their inter-relations, as well as **education,** are playing a more important role in the entire North. Hence knowledge can be interpreted to become a geopolitical factor (based on the discourse of Critical geopolitics), as activities of the Arctic scientific coumminity, such as the AHDR (2004) and the ACIA (2004), well indicate. Here climate change is both a new (kind of) challenge and opportunity which requests on the one hand, inter-disciplinarity and deeper interrelations between science and traditional, local knowledge, and on the other, the interplay between science and politics, and business, if you wish.

Final, **climate change** with its multi-functional and multi-faceted impacts can be seen as a significant factor *per se* (Heininen 2008a) to change northern geopolitics. Not least, since it has already been interpreted to be a threat for northern indigenous residents of the Canadian North (e.g. Report and Recommendations 2006) due to its societal impacts by bringing 'uncertainty' into societies, politics and governance of the region, as well as by threatening state sovereignty of the Arctic littoral states.

The main conclusion here is that climate change is greatly influencing Arctic geopolitics by caused and accelerated changes there in many and fundamental ways. This is the case in spite of the fact that for example, "decreasing ice" was not seen a few years ago as the top among local drivers to promote shipping in trans-arctic sea routes. Further, despite the fact that the Russian expedition to the sea bottom under the North Pole in August 2007 was first of all to bring attention to the procedure determined by UNCLOS, it caused big headlines in international media and much concern on a new kind of race on natural resources for the Arctic (e.g. Beary 2008; The Guardian, October 4, 2007), though it was not the real reason for that, but

much a visible thing. Indeed, climate change has recently acted like atrigger to start a "resource race" over potentially rich energy resources of the shelf of the Arctic Ocean, which has automatically been interpreted to mean an armed conflict, or new cold war, in the region, though it is not really the case.

Furthermore, climate change was perceived as a security matter when physical impacts of global warming in the circumpolar North has become very concrete and causes more and bigger concerns to people(s) and societies like for example, threatening traditional fishing and hunting. This indicates that climate change can be interpreted to implement a "risk society" from the point of view of indigenous and local peoples, and thus the Arctic is now increasingly "becoming both an environment of risk and an environment at risk" (Nuttall, Forest, and Mathiesen 2008).

Defining and discussing security and security implications of climate change

There are many ways to understand, define and interpret security, as well as insecurity, and what is meant by a danger, risk, threat, and safety (e.g. Heininen 2010). Furthermore, there are many kinds of security problems and challenges, global as well as regional ones. Finally, there are several adopted discourses on,and concepts of, security, such as environmental security, human security, energy security and food security, with their premises and paradigms (e.g. Heininen 2007a: 203216).

A traditional, or original, definition, as well as a narrow interpretation, of security refers to "unilateral, competitive, national, military security" (Newcombe 1986) which defends the state from enemy's armies advancing from the outside. In this definition of *traditional security* the state is the main subject of security, and the international system is seen as 'anarchy' based on hegemonic competition between states (Waltz 1979) as that seen for example, in the Second World War and the Cold War. This concept of security, particularly the military competition and tension between the USA and the Soviet Union, also dominated the circumpolar North through the second half of the 20th century. Consequently, the region's security policy and strategic importance was much studied and discussed in the 1980s and the early-1990s (e.g. Posen 1985; Miller 1989).

After several reports by the United Nations (e.g. Common Security 1982) and new discourses on interrelations between peace, development and the environment, the situation started to change. Other non-military points of view were discussed as security issues, such as social, economic and environmental ones (Buzan 1991: 363-374). Consequently, the notion of security was exposed to new content and the definition was widened toward a more human-oriented approach which emphasized

environmental or human aspects of security as alternative points of view to a narrow approach of military security based on the interests of southern centres. This new notion came to see and redefine security as relative and depending upon a particular context. As a result, *comprehensive security* emerged as a new interpretation emphasizing on one hand, environmental or ecological aspects of security and on the other, social and human aspects of security.

When defining *environmental or ecological security*, relevant hazardous environments and resource-based, environmental conflicts are important (e.g. Käkönen 1994; Dalby 2002). Furthermore, this new notion of security is based on an intense relationship between security and the environment (Galtung 1981; Westing 1989; Heininen 1991). In the early-1990s it was also applied to northern regions and northern seas (Heininen 1994; Langlais 1995), after environmental protection in the Arctic became an important concern of northern peoples and settlements and environmental movements as well a new, and foremost, field of multilateral cooperation between the Arctic states (Declaration 1991; AMAP 1997).

Even more than this, are arguments that environmental security is of particular relevance to the Arctic because of itsvulnerable ecosystem (e.g. Östreng 1999). In particular, this argument reflected on the issue of nuclear safety, which is one of the special features of northern security (e.g. Heininen 2007a). The original reason for this is the fact that being one of the hottest military theatres of the Cold War period the nuclear weapon system was strongly present in the Arctic, for example, through nuclear submarines, military facilities and radioactive wastes. Radioactive pollution and nuclear accidents in northern seas became an issue of public concern, and indeed a serious environmental problem or risk, that the governments of the Arctic states both recognized it and began functional cooperation to solve it (Declaration 1991; AMAP 1997, 111-127). The nuclear problem of the Barents Sea region (e.g. Bergman et al 1996; Heininen and Segerståhl 2002) became a metaphor for nuclear safety in the Arctic region.

There are other kinds of discourses of security which also recognize other subjects of security as the, rather abstract, state so often the only defined subject. Among these subjects are people and society. Consequently, *human security* has a focus on human beings as individuals, rather than the military security of a nation or society as a whole. It means the "every day" security of ordinary people as impacted, or threatened, by sources of insecurity extended beyond military conflicts and threatens to national (military) security, such as pollution, or other kind of environmental degradation, the large-scale utilization of natural resources, social and economic insecurity, political persecution and climate change (e.g. Huebert 2001; Hoogensen 2005; Goh 2006-2007). Human security is very broad and includes for example, the aspects of social security, economic and food security.

Among the governments of the Arctic states it was the Canadian government which first adopted the human security approach in the 1990s (e.g. Dwinedi et al 2001) and used it as a new innovation in its foreign policy and an important part of its Northern Dimension (Heininen and Nicol 2007). Correspondingly, *civil security* (Security in the European North 1999) emphasizes human beings as citizens with rights and duties. The term "civility" has become a political concept based on an idea of a good polity of citizens, which in the circumpolar context might be interpreted as a kind of "Arctic community" (Griffiths 1993). A part of this discourse is another special feature of northern security, the complex relationship between northerners, meaning indigenous and other local residents, and the military at the military front of the Cold War period (Doctorow 2007).

In the globalized world there are also global problems with their impacts to security, both traditional security and comprehensive (environmental and human) security. Among them are (global) security problems, such as proliferation of nuclear weapons; problems and threats to (global) economy and development such as poverty; (global) environmental problems such as long-range pollution, the ozone hole and climate change; and human rights and refugee problems (Hakovirta 2005; also Heininen 2010)[1]. These are much the results of the modernization process and industrialization with the faith of constant economic growth, and that of technology by our modern societies. Also, due to these kinds of global problems (to human and environmental security) in modern societies there are more and bigger risks as is defined by the concept of a risk society (see also Introduction of this volume).

Among new dimensions, if not discourses *per se,* of security are on the one hand, '*climatic' security* meaning security implications of climate change, as discussed in this chapter. On the other hand, there is *energy security* indicating that energy issues, particularly an access into oil sources, are assuming a central position in the relations between traditional major powers and emerging economies due to the high strategic role of energy and keen interrelations between politics, power and petroleum (e.g. Newsweek, December 2006-February 2007) in our modern world. Energy security is seen to be threatened by a scarcity of oil and energy dependence, and even a lack of credible options for energy sources, which has recently become a deterrent for many EU countries and the USA (Schlesinger and Deutch 2007). If traditionally, energy security meant security of supply and that of access to an energy source, a comprehensive definition also includes security of transportation and other facilities; access to pipelines, storage facilities and a reserve for strategic

[1] Global problems are defined (Hakovirta 2005) to include the combination of that they are global human or social problems with a real global dominance; they become global either by spreading from one country into another, or they are divided into different countries and continents; they threaten all or most of societies; and finally, an effective treatment of them requires comprehensive, international cooperation and commitment.

internal use, investment security; particularly environmental security; and finally an energy dialogue (Austvik 2006: 18; Moe 2007). Due to the current strategic importance of hydrocarbons, energy security is, however, closely related to traditional security concerns including internal defence and external conflicts (Shelley 2005), and is consequently seen, amongst others, in terms of an "energy weapon" and "petro-politics" in world politics (Smith 2006: 29-32). **

What is generally relevant in security discourses, are questions, such as "whose security are we talking about?," "security from whose point of view?" and "is a change in problem definition on security paradigm possible or not, and what might be the needed conditions?" These questions indicate that first, there are several actors dealing with, and searching for, security; and second, that security is not objective but relative, because it is socially constructed. Unlike traditional security where the state, as defined by the political and economic elite(s), is the main subject, this chapter views security from a broader perspective recognising different subjects of security. All this is relevant when thinking about and discussing climate change as a security factor, and what kind of security dimension it may have.

I admit that it is neither determined nor obvious, and that there is little firm statistical evidence (Vaahtoranta 2009), that climate change can be claimed to be a direct cause of inter-state conflict or war, as was said to be the case in the war in Darfur. Furthermore, there are arguments saying that the known impacts of climate change do not, yet, mean that climate change should be cast as a security problem, since here climate change might act in a way that when trying to solve a problem, it easily sharpens the problem (Korppoo 2008). However, many of the internal conflicts at the early-21st century are climate-related, like for example, in Darfur as well as in West Africa there is "vulnerability to climate change from the perspective of the vulnerable populations" (Nyong 2006-2007: 42). Behind the scence is the fact that poor developing countries depend so much on climate and weather.

Furthermore, climate change, particularly global warming and change in precipitation regimes, have relevant indirect impacts for human security (e.g. Haavisto 2007) and human rights as the United Nations' Human Rights Commission has stated (HS 29.3.2008). This is a situation particularly in cases with political and social characteristics, such as poverty, refugees and over-population, fragile, or failed states or states with weak political institutions and conflicts of interests between ethnic or religious groups (Vaahtoranta 2007). This brings us to the notion that climate change might be the needed factor for a violent conflict, because it is "indeed a very serious challenge". This is much due to its physical effects, such as increasing sea level and melting of glaciers, but even more serious might be "the uncertainty associated with climate change" (Gleditsch 2008: 705-706).

This discourse on the relationship between climate change and war or armed conflict, or a lack of it, has, however, the basic problem that it is too simple and too often viewed according to the concept of traditional security. Since the interpretation on security of this chapter is according to comprehensive security, we should try to find and identify indirect and more complex interrelations between climate change and security including aspects of environmental, human and traditional security. For example, through its physical impacts, such as melting of sea ice and glaciers, floods, drought, heat waves and thawing of permafrost, climate change is an environmental problem. Correspondingly, through the consequents of these physical impacts, such as erosion, crushing of buildings and infrastructure, increasing utilization of natural resources and transport, this environmental problem also causes multiple harms, extra costs, more threats and bigger risks to people(s) and societies, even to state sovereignty. Then, climate change has transferred into a security matter.

As a result there are, increasingly, environmental refugees due to rising sea level, flooding rivers and melting glaciers, or due to the scarcity of food and fresh water, and a race for (strategic) energy resources. Moreover, there is a danger of larger, even global migration due to the combination of climate change and (trans-boundary) pollution in industrial and urban areas of the globe. Further, melting of glaciers on the Himalayan together with other impacts of climate change is estimated to threaten the water and food security, i.e. supplies, and thus human security, of about 1.6 billion people in South Asia (see, the theme of the 5th NRF Open Assembly was "Our Ice Dependent World"). Finally, it appears that rapid global warming represents an environmental problem - either a regional or global problem – and environmental security. However, not only that, since people(s) and societies face the problem, too. Thus, climate change may, in the fiuture, also destroy societies and civilizations, as it has done in the past (see Diamond 2005).

Indeed, at the beginning of the 21st century climate change has the potential to destroy the material basis for human existence on the planet. While the critical increase in temperature for survival for human-beings, is about five Celsius degrees, climate change threatens the existence of the whole human kind (e.g. Taalas 2008). The risk is "comparable to nuclear war" (e.g. Schwab 2007) as the 'Nuclear Winter', which is one of the first scientific scenarios on global climate change, though meaning global cooling (see Heininen 2008b), much warned in the 1980s. Following from this it is possible to argue that there is a keen relationship between climate change, meaning rapid global warming, and security of people(s) and societies, when using discourses of comprehensive security (which is the main hypothesis of this article). Further, climate change greatly impacts both environmental security and human security, directly or indirectly, and it also easily creates violent regional or internal conflicts for resources, such as fresh water and agricultural land, particularly in developing, poor countries. Behind this is on the

one hand, the general notion that security is not objective but relative, and that it can be interpreted as being related to, and an excurse for a search for, almost everything (Westing 1989: 129). Following from this, the term "securitization" defined by the so-called Copenhagen School means that almost all issues are, or can be, securitized (Buzan 1991). On the other hand, there is the notion by Galtung (1982) that there are keen interrelations between security and the environment. Thus, climate change can be understood as a risk which needs human responses and immediate mitigation and adaptation at all levels: i.e. in economics, politics and governance. And, an evidently rapid global warming represents a socio-economic, or societal - either regional or global - problem for human security.

Furthermore, climate change has brought up fundamental, even strategic, security issues from the viewpoint of the state, such as economic interests, sovereignty and national security and defence, as the following examples indicate: Norway and Sweden have recently defined climate change, together with natural resources, as the biggest security challenge, though saying that there is no threat of an armed attack in sight (HS 26.11.2007, B2; 5.12.2007, B3). Also the Finnish government has recently defined climate change and the environment, as well as energy and competition for energy resources, among the most important global developments and challenges influencing Finland's security and defence policy (Valtioneuvosto 2009). Furthermore, the UK government has calculated the costs of climate change, both for the case of human response and the case of non human response, and proposed the theme on the agenda of the UN Security Council. SEPA's State of Scotland's environment report also highlights "climate change as being the biggest environmental threat facing Scotland" and hence, the concern that "global warming has been on the world political agenda for decades but now it is time for action" (SEPA View Nov/Dec 2006, Issue 33, 1). In its first in-depth study on climate change and its impacts for international security and politics the European Union Commission warns by the highest-level foreign policy officials that climate change poses serious threats and security risks for the EU and its foreign and security policies, such as possible conflict over resources and tension over energy supply, economic damage, loss of territory and border disputes, increase instability in weak or failing states, and environmentally-induced migration which might mean "millions of 'environmental' migrants" (European Commission 2008; also Financial Times, 10 March 2008). "Climate change is a key element of international relations and will be increasingly so in the coming years, including its security dimension" (European Commission 2008: 10).

Finally, through its direct and indirect impacts, climate change can also be understood to threaten the sovereignty of some states, such as the coastal states of Asia, or micro island states in the Indian Ocean and the Pacific, due to rising sea levels, and some of the littoral states of the Arctic Ocean due to melting of sea ice and erosion of shores. Further, state sovereignty, as well as national security, is also

challenged indirectly by scarcity of, or competition for, natural resources, such as fresh water and energy resources, and environmental scarcity. Indeed, climate change has already seen to be defined as, a (security) threat to state sovereignty for example, by Bangladesh and the Maldives due to the rising sea level[2], and, by Canada due to the melting of sea ice in the North-West Passage and hence an increased traffic in newly born sea routes.

It is also possible to argue that climate change has transferred from a possible risk into a potential danger from the point of view of national security and sovereignty. In addition of mitigation and adaptation as human responses to climate change there are more traditional ones from the point of view of a state, such as more patrolling and stronger national defence. The fact that climate change has appeared to have aspects of, and to deal with, security—and particularly national security—easily supports national decision-making which will easily appear as a traditional security/political issue demanding traditional answers such as more military defence.

Based on all this, and in spite of the last notion, there are many indicators saying that there is a need for further discussion and analysis on climate change as a security factor. This does not, necessary, mean that climate change should be interpreted to be, or become mostly a security issue or threat, but maybe more like an environmental and societal risk and challenge, which will require human response.

Discussion on climate change as a security factor in the North

Climate change has already caused and is causing insecurity among northern inhabitants, particularly indigenous groups, and within communities in cities, villages and other settlements (e.g. Minority Rights Groups International 2008; HS 1.6.2008, B8; HS 25.6.2008, C1). This insecurity is implemented in (totally) new conditions designed by climate change, which for example allow shorter time for fishing and hunting which means that seasonal fishing is becoming endangered. Further, these livelihoods as well the traditional diet are becoming more endangered and rare, as the concept food security indicates (see, Paci et al 2004). These kinds of growing risks and new threats cause human feelings, such as uncertainty, insecurity and even of feeling of guilty, the last one is possible to ignore by pointing that others are guilty (e.g. Seppälä 2007). All this is very much due to the uncertainty of climate change (see Cockburn in this volume), and the uncertainty associated with

[2] The island state has announced it has started to collect a national fund to buy a new homeland for its 380 000 citizens after the sea has occupied the 250 populated low islands (HS 11.11.2008).

climate change. This, as Gleditsch (2008: 706) says, is one of the most serious effects people and societies face, and is very relevant to security.

As a consequence of the impacts of climate change there is an interesting point of view which can be understood to be a new discourse on human security as well as civil security. In many settlements of the Canadian Arctic there is less traditional food and more difficulty to maintain the traditional diet. This raised a concern on *food safety or security*, and that the whole traditional food system is threatened, because climate change threatens traditional fishing and hunting on sea ice. Consequently, 'local' food is endangered in many parts of the Canadian Arctic due to "the impact of climate change on the availability of food species" (Chan 2006: 2), and rapid climate change isa serious threat to "the continued and predictable availability and access to food, derived from northern environments through Indigenous cultural practices" (Paci et al, 2004: 1). Here the relevant and interesting thing is that food security does not mean lack or scarcity of food supplies *per se* but scarcity of traditional diet and native food. And this seeriously impacts human and civic security, since "there can be no civil security in a world where food safety, supply and quality, is uncertain" (Paci et al, 2004: 1 and 10).

Based on the above, climate change threatens the security of northern peoples and the stability of northern settlements, as well as creates major challenges, and particularly poses major risks to communities on coastal regions. Consequently, it can easily be interpreted to be an environmental and socio-economic threat facing the Canadian North (e.g. Report and Recommendations 2006). It is the most challenging global environmental problem which Northern peoples and regions face. While climate change creates major challenges and poses major risks to communities forcing them either to adapt or to become environmental refugees.Thus it has challenged the security of many these settlements due to rapid melting of the sea ice, glaciers and permafrost. Furthermore, there is an urgent need for mitigation, which might well come too late, and adaptation and searching for adaptation strategies based on special conditions and features of the Arctic, such as resilience and traditional / local knowledge(s) (e.g. Nuttall, Forest, and Mathiesen 2008).

As mentioned earlier, climate change has already brought up fundamental strategic and national issues, such as economic interests and state sovereignty, and become, or interpreted as, a potential threat to national security by causing a sovereignty crisis from the viewpoint of a state. This is how it has already been interpreted and stated by Canadian experts and authorities (see, On Thinning Ice 2002), and also by the Finnish, Norwegian and Swedish governments, as mentioned earlier, and also by the report of eleven retired US generals and admirals (HS 16.4.2007, B1; 22.4.2007, B4).

All of this entails, on the one hand, that at the 21st century climate change has its relevant security dimension, and that it has an undoubted relevance: How to interpret climate change, and the 'uncertainty' caused by climate change, is relevant, either as a threat, risk, challenge or as a security dimension? On the other hand, the security dimension of climate change opens the complicated issue, as nuclear safety did in the 1990s, on how we can, and who will (re)define and conceptualize security in the circumpolar North, particularly meaning security of the region. If traditional security always means national security defined by a state, or its the political and economic elite of a state, and human security emphasizes that of peoples and citizens, then what about security from a point of view of a distinctive, cooperative region, such as the Arctic?

This is very much a central point when trying to define security of a region, or *regional security* meaning security of a group of like-minded countries, or that of a 'security community' (Bailes and Cottey 2006). There is not (yet) a definition of "regional" security for the circumpolar North, and the term is without an exact theoretical definition, but still under discussion. Here regional security does not mean security of a region based on an intergovernmental, political or military, organization or union, but comprehensive security from the point of view of a distinctive international and cooperative region and its people and societies based on functional cooperation across national borders, such as the Arctic region or the Barents Euro-Arctic Region (BEAR), as international cooperative regions. For example, the BEAR is an alternative approach to traditional military-based security, which emphasizes security of the state, and thus is an application of comprehensive security. (Heininen 2007a: 215-216 and 232-235) In this discourse a region with its people and regional and local actors is the (main) subject of security, not a state, and security is defined from the point of view of a region This would provide an opportunity to discuss democracy, identity and culture as a part of everyday's security of citizens, or civic security as one of the definitions of security.

The next challenge is how this regional security stability will be kept in circumstances, where changes, threats or risks, such as long-range pollution, or particularly radioactivity or physical impacts of climate change are present—or when the region is under the pressure of global security problems and global changes going beyond (traditional) security, or when a region, such as the Barents Region, continues to play a role as a reservoir of resources for the rest of the world. Would it be possible that the region as an international cooperative region (e.g. Fenge 2001: 80) will become a case study, or even a "workshop," intended to (re)define and build regional security. The Barents Region cooperation which can be interpreted to be a "laboratory" for nuclear safety by intergovernmental cooperation, such as AMEC and multilateral agreement on nuclear safety within the region (Heininen and Segerståhl 2002). Or, is it simply that regional security is not relevant, since climate change is first of all a global phenomenon and challenge.

Climate change willnot necessarily be, or become, the "big issue" on the political agenda of the international community, which unites human kind and all states, or become "a positive driver for improving and reforming global governance" as the EU Commission would like to see it (European Commission 2008). However, it could become a big, global 'grand' challenge. It should also be discussed as a relevant factor in the discourse of traditional security (e.g. Heininen 2007a; Korppoo 2008), and not only in that of comprehensive security. If so, then based on the comprehensive interpretation of security it requests a change in problem definition on security premises and paradigm(s) which is not, however, necessarily happening. This is because, on the one hand, security is complex and still includes nationalistic and militaristic aspects (Deudney 1999) which is particularly the case with actual environmental problems and risks stemming from military activities (Häyrynen and Heininen 2002). On the other hand, there is the somewhat more sceptical notion that in spite of the growing public concern on climate change, to define it as threat or risk, and the fact that is has already recognized to have security dimension, there is also room for a more sceptical point of view.

Conclusions

There is no definitive scientific evidence by statistics to indicate that climate change can be seen as a potential cause for a conflict or war. However, many of the internal conflicts of the early-21st century are climate-related in areas which have vulnerability to climate change from the perspective of the populations which are directly dependent on climate and weather, such as poor developing countries. Impacts of climate change on physical geography are multi-functional and pose potential for damage, particularly in coastal and permafrost areas. Since these impacts are multiple, and often are associated with many other environmental problems and stresses -- such as longrange air and water pollution, over-fishing, the growing utilization of natural resources -- the total impact is greater than the sum of its parts, and in addition to this there is the uncertainty of climate change. Consequently, due to its physical effects, and also due to this associated uncertainty, climate change is a serious challenge and might even be the factor which precipitates a violent conflict. Although the Russian expedition to the North Pole in 2007 and the expected further submissions by the littoral states of the Arctic Ocean, as determined by UNCLOS, got much publicity, it is climate change which has influenced and changed the geopolitics of the circumpolar North in the early 21st century. It has acted like a trigger to made possible to interpret a "resource race" over potentially rich energy resources of the shelf of the Arctic Ocean. More important is, however, that through its physical impacts climate change has already changed northern geopolitics in a fundamental way, and by manifesting itself as more and bigger risks it threatens, directly or indirectly, the Arctic ecosystem,

human infrastructure, people(s) and communities, and thus, peoples' everyday security. As a conclusion, among others, climate change has a clear security implication, and it has been perceived as a security matter. It has also been recognized to be a threat to national security as it has been interpreted and stated for example, by Canadian authorities.

Taken together, this entails, on the one hand, that climate change, either as a threat, risk, challenge, has a relevant security dimension. On the other hand, climate change raises the question of subjects of security: if traditional security means national security defined by a state, environmental security emphasizes that of the environment, and indirectly human beings, and human security representing peoples' everyday security. Climate change would, or should, emphasize the importance of a keen interrelationship between global and local, i.e. security of the whole globe -- global security – and that of regions, which are first and most threatened by climate change – local and regional security.

References

ACIA 2004. Impacts of a Warming Arctic: Arctic Climate Impact Assessment. Cambridge University Press, 2004.

AHDR (Arctic Human Development Report) 2004. Akureyri: Stefansson Arctic Institute, Reykjavik, Iceland.

AMAP 1997. Arctic Pollution Issues: A State of the Arctic Environmental Report. Arctic Monitoring and Assessment Programme, Oslo, 1997.

Anchorage Daily News, November 21, 2004 "Alaska congressional delegation doubts scientists' conclusions: Trio say more proof is needed before casting blame on fossil fuels" by Sean Cockerham. http://www.adn.com/front/story/5810117p-5738569c.html

Austvik, Ole Gunnar, 2006. "Oil and Gas in the High North – A perspective from Norway". Den Norske Atlanterhavs Komite, Security Policy Library 4-2006, 3-25.

Bailes, Alyson J.K. and Cottey, Andrew, 2006. Regional security cooperation in the early 21st century. In: SIPRI Yearbook 2006: Armaments, Disarmament and International Security.

Beary, B. (2008), 'Race for the Arctic. Who owns the Regions's Undiscovered oil and gas?', *Global Researcher. Exploring International Perspectives,* August 2008, Volume 2, Number 8, Pages 213-242. www.globalresearcher.com

Beck, Ulrich, 1992. "From Industrial Society to Risk Society: Questions of Survival, Social Structure and Ecological Enlightenment". In: *Cultural Theory and Cultural Change*. Ed. by M. Featherestone. London: Sage.

Begley, Sharon, 2007. "The Truth about Denial". *Newsweek*, August 13, 2007, 36-43.

Begley, Sharon, 2009. "Climate-Change Calculus". *Newsweek*, August 3, 2009, 26.

Bergman, R. Baklanov, A. Segerståhl, B. 1996. "Overview of nuclear risks on the Kola Peninsula. Summary report"(IIASA Radiation Safety of the Biosphere. International Institute for Applied Systems Analysis, Laxenburg, May 1996).

Borgerson, Scott G., 2008. "Arctic Meltdown: The Economic and Security Implications of Global Warming". *Foreign Affairs*, March/April 2008. Foreign Affairs web site. 16.3.2008.

Brainstorming Meeting on Potential Themes for the 4th NRF Open Meeting at Aleksanteri Institute, Helsinki in October 4th of 2005 (participants: Tarja Cronberg, Lassi Heininen, Pauli Jumppanen, Markku Kivinen, Kari Laine and Sauli Rouhinen). (mimeo)

Brigham. Lawson W. 2007. "Thinking about the Arctic's Future: Scenarios for 2040". *The Futurist*, September-October 2007, 27-34.

Buzan, Barry, 1991. People, States and Fear: An Agenda for International Security Studies in the Post-Cold War Era. 2.Edition (1983). Harvester Wheatsheaf, Hertfordshire.

Chan, Laurie H.M. 2006. "Food safety and food security in the Canadian Arctic". *Meridian* Fall/Winter 2006, 1-3.

Clark, D., Tyrrell, M., Dowsley, M., Foote A.L., Freeman, M. and Clark, S.G., 2008. "Polar Bears, Climate Change, and Human Dignity: Disentangling Symbolic Politics and Seeking Intergrative Conservation Policies". *Meridian* Fall/Winter 2008, 1-6.

Common Security. A Blueprint for Survival. UN/A/CN.10/38. Independent Commission on Disarmament and Security. January 1982.

Dalby, Simon, 2002. Environmental Security. Borderlines, Volume 20. University of Minnesota Press, Minneapolis.

Declaration 1991 Declaration on the Establishment of the Arctic Environmental *Protection Strategy* Rovaniemi, Finland.

Degenhardt Henry W. 1985 Maritime Affairs – A World Handbook. A Reference Guide to Maritime Organisations. Conventions and Disputes and to the International Politics of the Sea. Appendix 1, 247-357. Keesings, Great Britain.

Deudney, D.H., 1999. "Environmental Security. A Critique". In: *Contested Grounds. Security and Conflict in the New Environmental Politics*. Eds. by Deudney, D.H. and R.A. Matthew. State University of New York Press, Albany: 187-219.

Diamond, Jared 2005. *COLLAPSE. How Societies Choose to Fail or Succeed*. Allen Lane, London.

Dickey, Christopher and McNicoll, Tracy, 2008. "'A Green New Deal'". Newsweek, November 2008, 21-25.

Diesen, Sverre (Chief of Defence, Norway) 2007. "New Perspectives on Military Power in the Arctic". Presentation at the international conference *Emerging from the Frost. Security in the 21st Century Arctic*, 25-26 October 2007, Tromsö, Norway. (author's notes)

Doctorow, E.L. 2007. Trans-aggressive Impulses, *The Paula Gordon Show Website*, Atlanta: March 24, 2007

Duhaime, G. and Caron, A. (2006), 'The economy of the circumpolar Arctic', in *The Economy of the North,* 17-23, Solveig Glomsröd and Lulie Aslaksen (eds.) (Oslo- Kongsvinger: Statistics Norway, Statistical Analyses).

Dunay, P. and Lachowski, Z. 2007. "Euro-Atlantic security and institutions". In: *SIPRI Yearbook 2007: Armaments, Disarmament and International Security*. Stockholm International Peace Research Institute, Oxford University Press, Great Britain, 2007, 23-54.

Dwivedi, O. P., Kyba, Patrick, Stoett, Peter J. ja Tiessen, Rebecca. 2001. Sustainable Development and Canada – National & International Perspectives. Canada.

European Commission 2008. Climate Change and International Security. paper from the High Representative and the European Commission to the European Council. S113/08, 14 March 2008.

Fenge, Terry, 2001. "The Inuit and Climate Change". *Isuma* Winter – Hiver 2001, 79-85.

Financial Times, 10 March 2008 "Climate 'threatens' European security"; 22-23 April 2006 "Disasters set off by severe weather show sharp rise".

Galtung, J., 1982. Environment, Development and Military Activity. Towards Alternative Security Doctrines. Oslo-Bergen-Trondheim.

Gisladottir, Ingibjörg Solrun (Minister for Foreign Affairs of the Republic of Iceland). 2007. "An Alliance in Transformation – An Ally Transforming."

Statement presented at *The NATO Parliamentarians Political Committee*, 6 October 2007, Reykjavik, Iceland.

Gleditsch, N. P., 2008. "The Liberal Moment Fifteen Years On". *International Studies Quarterly* Volume 52, Number 4, Decmeber 2008, 691-712.

Goh, Evelyn, 2006-2007. "Development and Security in Southeat Asia, Volume I: The Environment". Environmental Change and Security Program REPORT, Issue 12 – 2006-2007, 87-88.

Government of Canada, 2009. CANADA'S NORTHERN STRATEGY – Our Heritage, Our Future. Minister of Indian Affairs and Northern Development and Federal Interlocutor for Metis and Non-Status Indians. Ottawa.

Griffiths Franklyn, 1993. Defence, Security and Civility in the Arctic Region. The Nordic Council's Arctic Conference, Reykjavik 16-17/18, 1993.

Guterl, Fred and Sheridan, Barrett, 2008. "Will Climate Go Over the Edge?" Newsweek, July7/July 14, 2008, 46-67.

Guterl, Fred, 2009. "Will Climate Go Over the Edge?" Newsweek, March 2, 2009, 36.

Haavisto, Pekka, 2007. "The wars of climate change". *European security, OSCE review*, vol. 15, 3/2007, 4-5.

Haila, Yrjö, 2001. "Johdanto: Mikä ympäristö?". *Ympäristöpolitiikka. Mikä ympäristö, kenen politiikka*. Eds. by Yrjö Haila & Pekka Jokinen. Vastapaino, Jyväskylä 2001. p. 9-20.

Hakovirta, Harto, 2005. Muutama suositus ihmiskunnan uudelleenkoulutukseen. Globaaliongelmat ja niiden hallinta. *Kosmopolis* 35:4, 30–45.

Häyrynen, Nina and Heininen, Lassi. 2002. "Changes in Problem Definition - a Case Study of Nuclear Risks in the Barents Sea Region". In: *Proceedings from The 5th* International Conference on Environmental Radioactivity in the Arctic and Antarctic. St. Petersburg, Russia, 16-20 June 2002. Extended Abstracts. Edited by Per Strand, Torun Jölle & Åse Sand. Norwegian Radiation Protection Authority, Norway, June 2002. p. 113-115.

Heininen, Lassi and Nicol, Heather N. 2007. "A New Northern Security Agenda". In: *Borderlands. Comparing Border Security in North America and Europe*. Ed. by Emmanuel Brunet-Jailly. The University of Ottawa Press, Canada 2007. p. 117-163.

Heininen, Lassi and Segerståhl, Boris. 2002. "International Negotiations Aiming at a Reduction of Nuclear Risks in the Barents Sea Region". In: *Containing the Atom.* International Negotiations on Nuclear Security and Safety. Edited by

Rudolf Avenhaus, Victor Kremenyuk and Gunnar Sjöstedt. Lexington Books. International Institute for Applied Systems Analysis. New York 2002. p. 243-270.

Heininen, Lassi, 1994. "The Military and the Environment: An Arctic Case". In*: Green Security or Militarized Environment*. Ed. by Jyrki Käkönen. Dartmouth Publishing Company, Aldershot, p. 153-165.

Heininen, Lassi, 2004. "Circumpolar International Relations and Geopolitics". In: *AHDR (Arctic Human Development Report) 2004*. Akureyri: Stefansson Arctic Institute, Reykjavik, Iceland. p. 207-225.

Heininen, Lassi, 2005. "Impacts of Globalization, and the Circumpolar North in World Politics". Polar Geography, Vol. 29, No. 2 (April-June): 91-102. Issue: Challenges of Globalization for the North.

Heininen, Lassi, 2006. "A New Northern Security - Relevant Approaches and Factors". In: European Union Enlargement of 2004 and Beyond: Responding to the Political, Legal and Socio-Economic Challenges. Eds. by Roswitha King and Tatjana Muravska. University of Latvia, Riga 2006. p. 353-366.

Heininen, Lassi, 2007a. "Turvallisuuden monet sisällöt ja pohjoisen turvallisuuden kehitys". In: *Miksi Pluto ei ole planeetta? Johdatuksia politiikan tutkimukseen*. Edited by Petri Koikkalainen and Sam Krause. P.S.C. Inter, Rovaniemi 2007. p. 200-245.

Heininen, Lassi, 2010. "Security in the North, and Globalization and Global Problems". In: *Globalization and the Circumpolar North,* eds. by Lassi Heininen and Chris Southcott. University of Alaska Press, Fairbanks, 2010.

Heininen, Lassi. 1990. "An Introduction". In: *Arctic Environmental Problems*. Ed. by Lassi Heininen. TAPRI. Occasional Papers No. 41. Tampereen Pikakopio Oy, Tampere 1990. p. 7-20.

Heininen, Lassi. 1991. Sotilaallisen läsnäolon ympäristöriskit Arktiksessa - Kohti Arktiksen säätelyjärjestelmää (The Environmental Risks of Military Presence in the Arctic - Toward the Arctic Regime). Tampere Peace Research Institute. Research Report *No. 43*. Tampereen yliopisto, Tampereen Pikakopio Oy, 1991.

Heininen, Lassi. 2007b. "Barents Sea energy resources & regional cooperation: new challenges and opportunities". In: *Energy and Conflict Prevention. Anna Lindh Programme on Conflict Prevention. 2007 Edition.* Madariaga European Foundation. GIDLUNDS, Södertälje, Sweden 2007. p. 90-104.

Heininen, Lassi. 2008a. "Changing Geopolitics of the North". In: *Politics of the Eurasian Arctic. National Interests & International Challenges*. Eds. Gudrun Rosa

Thorsteinsdottir and Embla Eir Oddsdottir. The Northern Research Forum and Ocean Futures, Akureyri, 2008. p. 31-46.

Heininen, Lassi. 2008b. "Climate Change causing Changes in Problem Definition on Security." Presentation at *The 49th Annual Convention of ISA* 2008, Section: WC51 Final Frontier or Global Laboratory? The Interface between Science and Politics in the International Polar Year (IPY) in San Francisco, USA, March 26th – 29th of 2008. (mimeo)

Helsingin Sanomat (HS): 16.4.2007, B1 "USA:n kenraalit varoittivat ilmastoriskeistä"; 22.4.2007, B4 "Ilmastonmuutos mietityttää sotilaita"; 26.11.2007, B1 "Luonnonvarat ja ilmastonmuutos Norjan suurimmat turvallisuushaasteet"; 5.12.2007, B3 "Ilmastonmuutos Ruotsin vakavin turvallisuuspoliittinen uhka"; 27.1.2008, D6 "Euroopan poliittinen ilmastonmuutos"; 29.3.2008, B3 "YK: Ilmastonmuutos ihmisoikeusasia"; 1.6.2008, B8 "Ikirouta sulaa siperialaiskylän alta"; 25.6.2008, C1 "Sulava ikirouta uhkaa Siperian kansoja"; 8.9.2008, B1 "Uusi vaarallinen myrsky rymysi Karibialla"; 11.11.2008, B1 "Malediivit etsii uutta kotimaata kansalaisilleen".

Hoogensen, Gunhild. 2005. Human Security in the Arctic. Presentation to ICARP II, Copenhagen, 11. November 2005.

Huebert, Rob 2001. "Climate Change and Canadian Sovereignty in the Northwest Passage." *Isuma* 2, no.4 (Winter 2001), http://www.isuma.net/v02n04/huebert/huebert_e.shtml).

Huebert, Rob 2002. "Canada's on thin ice". The Globe and Mail, Tuesday, January 29, 2002, A15.

Huebert, Rob, 2004. Arctic Security: Different Threats and Different Responses. A Discussion Paper / Position paper for the 3rd NRF Open Meeting, Yellowknife, NWT, Canada, September 15-18, 2004.

Humanekologiska skrifter 13. Göteborg University. Göteborg.

International Herald Tribune, October 13-14, 2007, 1 "Gore vindicated by Nobel Peace Prize, 4 "For Gore, a pinnacle in a decade of ups and downs" and 6 "The Nobel committee takes on climate change".

IPCC 2007. "Climate Change 2007: Synthesis Report. Summary for Policymakers. Intergovernmental Panel on Climate Change.

Järvinen, Antero, 2008. "Ilmastonmuutoksen ennusteet eivät näytä toteutuvan Lapissa". Helsingin Sanomat 8.9.2008, A2.

Käkönen, Jyrki, 1994. Green Security or Militarized Environment. Dartmouth.

Korppoo, Anna, 2008. "Ilmastonmuutosta turha 'turvallistaa'". *Helsingin Sanomat*

Langlais Richard, 1995. *Reformulating Security. A Case Study from Arctic Canada*.

McCormick, John, 2001. Environmental Policy in the European Union. ?: Palgrave.

Meakin Stephanie and Fenge, Terry 2004. "Indigenous peoples and the Stockholm Convention on Persistent Organic Pollutants". *AHDR (Arctic Human Development Report) 2004*. p. ? Reykjavik: Stefansson Arctic Institute

Miller, Steve E., 1989 "The Arctic as a Maritime Theater," a background paper for the international project on Arctic development and security of the Tampere Peace Research Instititute (December 19, 1989). or Miller 1992

Minority Rights Groups International 2008. "Minority and Indigenous Groups – Silent Victims of Climate Change Says New Global Report". March 11, 2008.

Moe, Arild. 2007. "Energy Security – introduction." Presentation at the international conference *Emerging from the Frost. Security in the 21st Century Arctic*, 25-26 October 2007, Tromsö, Norway.

Newcombe, Hanna. 1986. Collective Security. Common Security and Alternative Security: A Conceptual Comparison. *Peace Research Reviews* 10:3, 1–8, 95–99.

Newsweek, December 2006-February 2007. Special Edition.

Newsweek, May 5, 2008. "Environment and Leadership". pp. 34-54.

Nilsson, Annika E. 2007. A Changing Arctic Climate. Linköping: Linköping

Nuttall, Mark, Forest Pierre-Andre, Mathiesen, Svein D. 2008. "Adaptation to Climate Change in the Arctic". A background paper for the Joint Seminar of UArctic Rectors' Forum an d the Standing Committee of Parliamentarians of the Arctic Region on February 28, 2008 in Rovaniemi, Finland.

Nyong, Anthony, 2006-2007. "Climate-Related Conflicts in West Africa". *Environmental* Change and Security Program REPORT, Issue 12 – 2006-2007, 36-43.

On Thinning Ice: Climate Change and New Ideas about Sovereignty and Security in the Canadian Arctic. Presentation Abstracts. CARC, CMSS and CPC, 2002.

Östreng, W. 1999 (Ed). National Security and International Environmental Cooperation in the Arctic - the Case of the Northern Sea Route. Kluwer Academic Publishers. Environment & Policy, Volume 16, Dordrecht.

Paci, James, Dickson, c., Nikels, S., Chan, L. and Furgal, C., 2004. Food security of northern Indigenous Peoples in a time of uncertainly. Position paper for the 3rd NRF Open Meeting, Yellowknife, NWT, Canada, September 15-18, 2004.

Pharand, D. (2009), 'Canada's Arctic Sovereignty and the Northwest Passage', *Meridian* Spring / Summer 2009, 1-5.

Posen, Barry, R., 1985. "The US Military Response to Soviet Naval Developments in the High North". A presentation in the Harvard Nordic Conference "The Military Build-Up in the High North," April 19 and 20, 1985, Harvard University, Camridge, MA. center for International Affairs, Harvard University. (mimeo)

Proninska, K. 2007. "Energy and security: regional and global dimensions". In: SIPRI Yearbook 2007: Armaments, Disarmament and International Security. Stockholm International Peace Research Institute, Oxford University Press, Great Britain, 2007, 215-240.

Pulsifer, Peter L. and Taylor D.R.F., 2007. Spatial Data Infrastructure: Implications for Sovereignty in the Canadian Arctic. Meridian, Spring/Summer 2007, 1-5.

Report and Recommendations from A Workshop "The Arctic and Canada's Foreign Policy" sponsored by The Walter and Duncan Gordon Foundation 4-5 October 2006.

SEPA View, Nov/Dec 2006, Issue 33, 1-3 "Climate change in our lifetime".

Seppälä, Matti 2007. "Ilmasto vaihtelee – voidaanko se lailla kieltää?," *Tieteessä tapahtuu,* 1/2009, 50-52.

Serreze, Mark C., 2008/2009. "Arctic Climate Change: Where Reality Exceeds Expectations". *Witness the Arctic*, Winter 2008/2009, Volume 13, Number 1, 1-4.

Shelley, Toby 2005. OIL. Politics, Povery & the Planet. ZED BOOKS, London & New York, 2005.

Smith, Keith. 2006. Russian energy policy and its challenge to Western policy makers, *Den Norske Atlanterhavs Komite*, Security Policy Library

Stoltenberg 1993. "Barentsregionen. Et regionaliseringsprosjekt i det nordligste Europa. Aktuelle utenrikspörsmål". Det Kgl. Utenriksdepartement Nr. 1 / 93 – April 1993.

Taalas, Petteri, 2009. "Ilmaston lämpeneminen voi uhata ihmisen olemassaoloa". Helsingin Sanomat, 26.3.2009, A 2 Vieraskynä.

The Guardian, Thursday, October 4, 2007, 'Melting ice cap brings diamond hunters and hopes of indepence to Greenalnd', Paul Brown in Greenland, <http://www.guardian.co.uk/environment/2007/oct/04/1>

Theil, Stefan, 2009. "Greenest Nation". *Newsweek*, March 2, 2009, 28-33.

University, Linköping Studies in Arts and Science No. 386 - pp. 13-22 and 80-93.

USGS Fact Sheet 2008-3049. 'Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle'.

Vaahtoranta, Tapani, 2007. "The wars of climate change". *European security, OSCE review*, vol. 15, 3/2007, 2.

Vaahtoranta, Tapani, 2009. "Kansainvälinen ilmastopolitiikka ei saa unohtaa köyhiä maita". Helsingin Sanomat, 27.4.2009, A2.

Valtioneuvoston kanslia, 2009. Suomen turvallisuus- ja puolustuspolitiikka 2009.

Valtioneuvoston selonteko. Valtionneuvoston kanslian julkaisusarja 11 / 2009. Helsinki.

Waltz, K. N., (1979), *Theory of International Politics*. (New York: McGraw-Hill Inc).

Westing, A. 1989. The Environmental Component of Comprehensive Security. *Bulletin of Peace Proposals* 20:2, 129–134.

Westing, A., 1988. The Military Sector vis-à-vis the Environment. *Journal of Peace Research, vol. 25, no. 3*, 257-264.

Contributors

Lisa Cockburn is a PhD candidate in science and technology studies at York University in Toronto, Canada, who is currently based in Ho Chi Minh City, Vietnam. Her doctoral research focused on emerging arenas of public discourse on synthetic biology and the environment. She is also interested in biotechnological approaches to waste management, including waste-to-energy, and other environmental and energy challenges. She holds a Master's of Social Science in International Relations, during which she studied the use of indigenous knowledge in climate change research in Arctic regions. She has worked in the biological and life sciences, public health, teaching, communications and administration.

Susan Crate is an Associate Professor in the Department of Environmental Science & Policy at Geroge Mason University. She is an applied social scientist trained in cultural anthropology and human ecology with a focus on the complex issues of human-environment interactions. She has conducted research across southeastern Siberia since 1988 and worked with Viliui Sakha communities of western Sakha, northeast Siberia, Russia, since 1991. For her PhD research, she focused on the cultural ecology of native post-Soviet adaptation in sub-arctic, Siberia, Russia. In 2006 she published a monograph that integrates many of her research foci titled *Cows, Kin and Globalization: The Ethnography of Sustainability*.

Heather Exner-Pirot, Ph.D., is the Strategist for Outreach and Indigenous Engagement in the College of Nursing at the University of Saskatchewan, Canada. She is the Managing Editor of the Arctic Yearbook, a member of the Board of Advisors for The Arctic Institute, an Editorial Board member with the *Canadian Journal of Foreign Policy*, a Board member with the Saskatchewan First Nations Economic Development Network, and an online commentator for Radio Canada's *Eye on the Arctic*. She earned her PhD at the University of Calgary in 2011 and has held positions with the University of Arctic and the International Centre for Northern Governance and Development at the University of Saskatchewan.

Nadine Fabbi, Ph.D., is the Managing Director of the Canadian Studies Center and Arctic and International Relations in the Henry M. Jackson School of International Studies at the University of Washington. Her research interests include an understanding of the Arctic as an emerging region in the field of area studies, the political mobilization of the Inuit Tapiriit Kanatami in Canada, Arctic indigenous internationalism, the role of the Permanent Participants on the Arctic Council, and Arctic domestic and foreign policy including the declarations of Arctic indigenous peoples. Her recent publications include "Inuit foreign policy and

international relations in the Arctic" (2015), "Inuit political involvement in the Arctic" (2012); and "Geopolitics, Arctic Council, and Arctic resources" (2012). Her travels have taken her to Greenland, the Westfjords in Iceland, Yakutsk in Siberia, the Yukon, Alaska, and Churchill, Manitoba.

Mikhail M. Kalentchenko, Ph.D., graduated from Murmansk State Pedagogical Institute as teacher of English and Finnish in 1998 and then practiced as interpreter for law enforcement bodies, authorities, research organizations and fishing companies. After graduating as a lawyer in 2003, he provided legal advice to the Murmansk Marine Biology Institute, the Kola Mining Company and fisheries, cooperated in various projects with World Wildlife Foundation (WWF) Russia and the Fridtjof Nansen Institute. In 2008 he defended his thesis on the legal regime of marine protected areas in maritime zones under the Russian jurisdiction at the Institute of State and Law of the Russian Academy of Sciences. He has co-authored commentaries on key Russian environmental acts including the Water Code of the Russian Federation 74-FZ as of 2006, the Fisheries and Aquatic Biological Resources Protection Law 166-FZ as of 2004, the Specially Protected Nature Areas Law 33-FZ as of 1995, the Animal World Law 52-FZ as of 1995, and the Environmental Protection Law 7-FZ as of 2002. He has also authored reports on the economic viability of Russian fisheries in the Barents Sea and environmental regulations related to shipping activities. In 2014 he was enrolled in the Russian Federal Agency for Research Organizations in Moscow as an officer. His latest contributions include proposals to the Russian Federation Government regulations on Arctic marine ecosystem health indicators and the contents of the Russian Marine Activities Strategy 2030 update.

Dr. James Kraska is Howard S. Levie Professor in the Stockton Center for the Study of International Law at the U.S. Naval War College in Newport, Rhode Island. He is also a Distinguished Fellow at the Law of the Sea Institute, University of California Berkeley School of Law and Senior Fellow at the Center for Oceans Law and Policy at the University of Virginia School of Law. He is also a Member of the Council on Foreign Relations and a Senior Fellow at the Foreign Policy Research Institute. Previously, he served as an endowed visiting scholar at Duke University Marine Laboratory and Fellow in residence at the Marine Policy Center, Woods Hole Oceanographic Institution. His publications include numerous scholarly articles and books, including *Maritime Power and Law of the Sea* (Oxford) and co-author of the treatise *International Maritime Security Law* (Brill).

Dr. Lassi Heininen is a Professor of Arctic Politics at the Faculty of Social Sciences, University of Lapland (Finland). His research fields include International Relations, Geopolitics, Security Studies, Environmental Politics, Northern / Arctic Studies,

and Political History. Professor Heininen teaches and lectures regularly abroad, and supervises MA and PhD students from Finland, Iceland, Russia, and other Arctic countries. Among his other academic positions are Adjunct professor (Docent) at Trent University (Ontario, Canada), Visiting Professor at University of Akureyri (Iceland), and Director of International Summer School in Karelia at Petrozavodsk State University (Russia). He is also Head of the Thematic Network on Geopolitics and Security Studies as well as the Editor of the *Arctic Yearbook*, a peer-reviewed online international publication. Among his latest scientific publications are *Future Security of the Global Arctic: State Policy, Economic Security and Climate* by Palgrave Pivot (edited, 2016); "Finland as an Arctic and European State" in *International Relations and the Arctic. Understanding Policy and Governance* (Cambria Press, 2014); and "*Human security, the Arctic Council and climate change: competition or co-existence?*" (with H. Nicol) in *Polar Record* (2013).

P. Whitney Lackenbauer, Ph.D., is a Professor in the Department of History and co-director of the Centre on Foreign Policy and Federalism at St. Jerome's University in the University of Waterloo, Ontario, Canda. He is Honorary Lieutenant-Colonel of 1st Canadian Ranger Patrol Group, a Fellow with the Canadian Global Affairs Institute and the Arctic Institute of North America, and an adjunct professor at the Frost Centre for Canadian Studies & Indigenous Studies at Trent University. Dr. Lackenbauer specializes in Arctic policy, sovereignty, security, and governance issues; modern Canadian and circumpolar history; and Indigenous-state relations in Canada.

Dr. James Manicom is the author of *Bridging Troubled Waters: China, Japan and Maritime Order in the East China Sea*. He holds a Ph.D. in International Relations from Flinders University in Australia and worked at the Centre for International Governance Innovation in Waterloo between 2012 and 2014. He currently serves as an advisor to the National Bureau of Asian Research's Maritime Awareness Project.

Willy Østreng is a political scientist, international affairs from the University of Oslo. He is Director of Østreng Consulting and affiliated Professor at the University of Alaska Fairbanks. He was President of the Norwegian Scientific Academy for Polar Research (2012-2015), Scientific director at the Centre for Advanced Study at the Norwegian Academy of Sciences and Letters, (2003-2009), Executive director of the Fridtjof Nansen Institute (1978-2003), Adjunct professor at the Norwegian University of Science and Technology (1994-2004), and Chairman of the Board at Ocean Futures, (2005-2009). He has been Visiting Senior Fellow to the Harvard University and the University of California Berkeley, Visiting Professor to the University of Alaska-Fairbanks, and Special advisor to the Royal Norwegian Ministry of Foreign Affairs. He is an elected

member of the Royal Norwegian Society of Sciences and letters, the Norwegian Scientific Academy for Polar Research and of the International Academy of Regional Development and Cooperation in Russia. He has published about 250 scientific works, among them 30 books, on polar politics, ocean affairs, military security, international resource management and science theory, in particular on interdisciplinarity in research.

Svetlana Touinova, Ph.D., is formerly a researcher with the Economic Policy Department and is now a research fellow with the Luzin Institute for Economic Studies in the Kola Science Centre of Russian Academy of Sciences, Apatity, Murmansk Region, Russia.

Dr. Tuula Tuisku is a social anthropologist at the Thule Institute, University of Oulu and the Arctic Centre, University of Lapland, Finland.

Climate Change and Human Security from a Northern Point of View

Edited by Lassi Heininen and Heather Nicol

During the last decades there has been an “awakening” in acknowledging the problem of climate change, particularly in the circumpolar North where the effects of global warming are clearly discernible. Based upon papers delivered at the 2008 Calotte Academy on Climate Change Defining Human Security and the 2011 workshop Geopolitics, Resources and Security: Asia and the Arctic in the 21st century held in Ottawa, the chapters in this volume explore the effects of climate change on Arctic populations, security and international cooperation, offering new insights into geopolitics, environmental risks, and human security in the circumpolar world.

Lassi Heininen, Ph.D., is a Professor of Arctic Politics in the Faculty of Social Sciences, University of Lapland, Finland.

Heather Nicol, Ph.D., is a Professor of Geography and Director of the School for the Study of Canada at Trent University, Ontario, Canada.

CFPF Centre on Foreign Policy & Federalism

ISBN 978-0-9684896-3-5