Content

Sustainable development in the Arctic................................................................. 4
Breaking the ice ........................................................................................................ 6
Beginning of things to come .................................................................................. 7

ARCTIC GAMES
Interactive development and application of a transdisciplinary framework for sustainable governance options of Arctic natural resources .......... 8

ASSESSING ARCTIC FUTURES
Voices, Resources and Governance ..................................................................... 22

ARCTIC FUTURES
Managing Competition and Promoting Cooperation ........................................... 32

PREPARING FOR AND RESPONDING TO DISTURBANCE
Arctic lessons for Sweden ....................................................................................... 42

FROM RESOURCE HINTERLAND TO GLOBAL PLEASURE PERIPHERY?
Assessing the role of tourism for sustainable development in Arctic communities .................................................. 50
Communication ....................................................................................................... 64

Annual report programme level ............................................................................. 72
Annual report per project ......................................................................................... 72
What is the challenge?
Environmental change in the Arctic leads to both dangers and possibilities. In the wake of these lie socio-economic changes and new political ambitions. The consequences can be of widely varying character, running the full range from local to international levels. Natural resources that were once deemed impossible to access are now potential assets, causing increasing focus of attention on geopolitical questions. Shrinking sea ice creates new potential transportation routes for shipping. This development is of great economic and political interest, not only to the Arctic countries but to countries outside the Arctic region as well. At the same time, people and organizations from around the world want to protect the Arctic landscape, animals and nature.

How can the programme contribute to a solution?
The aim of the Mistra programme Arctic Futures in a Global Context is to stimulate research that contributes to sustainable development in the Arctic. The interdisciplinary research programme consists of five separate research projects, joined under the programme through a common focus on the future of the Arctic. Although majority of the work is dedicated to the specific research issues in each of the component projects, the programmatic format makes it possible to build a strong multidisciplinary competence base.

Who will benefit from the results?
Activities at the programme level are dedicated to strengthening outreach efforts and improving accessibility to comprehensive information from the projects for non-scientific stakeholders in need of expertise on Arctic issues. Nevertheless, the programme as a whole also makes efforts to reach out to the scientific community.

A full list of meetings and publications can be found on page 64.
Beginning of things to come

The Mistra programme Arctic Futures in a Global Context is halfway through its first phase, and an evaluation in May 2012 lies ahead. The projects included in the programme are already fruitful in their own rights, and are delivering according to plan.

The process leading up to the start of this programme in 2011 was long. Cecilia Dahlberg was the Programme Director until the beginning of 2012. She developed a model for collaborating across the projects that the programme will continue to use, and laid the foundation for an activity plan that embraces joint meetings and outreach activities for different stakeholder groups.

The Arctic is an emerging issue on global political and social agendas – even if it has always been a quiet place – and Sweden needs to be a part of that movement, preferably through national expertise with international commitments and outlook. I look forward to leading and coordinating the activities in this timely research programme. We anticipate that the wide range of issues covered by the research projects in this programme will result in many interesting opportunities for linkages between the projects; implementing joint outreach activities is one way of unifying them.

The research programme was represented at the ICASS VII conference in June 2011, as well as at the meeting for Senior Arctic Officials of the Arctic Council, in Luleå in November 2011. Researchers from several of the projects presented their work at the IPY conference From Knowledge to Action in April 2012 in Montreal. The website arcticfutures.se is one of the foremost channels of communication for the programme. A folder about the programme was produced in 2011, and an updated version was printed for the programme symposium Arctic Futures: Increasing Knowledge in Social Sciences and the Humanities held during the Stockholm Polar Week in March 2012 at the Canadian Embassy in Stockholm.

Reaching out and interacting with fellow researchers, stakeholders and policymakers will be important for the rest of this first programme phase. Swedish researchers in the social sciences and humanities that are interested in Arctic and Antarctic issues will be coming together and join ranks in attempt to develop a better position and a common approach for reaching out to research funding sources, the international science community and other target groups for their work. I believe that the Arctic Futures in a Global Context programme can benefit from, and provide benefits to, such efforts.

Sofia Rickberg
Programme Director
Mistra Arctic Futures in a Global Context

Breaking the ice

The aim of the Mistra programme Arctic Futures in a Global Context is to stimulate research that contributes to sustainable development in the Arctic. Although the Arctic is attracting a great deal of attention, Arctic research in Sweden has traditionally had a bias toward the natural sciences. This programme is focused on the socioeconomic and political aspects of the Arctic and its global linkages. The vision is to stimulate Arctic research in the social sciences and humanities, thereby creating strong research environments and attracting a new generation of scholars, as well as linking Swedish science in this field to wider international research networks.

In contrast to most Mistra programmes “Arctic Futures in a Global Context” is comprised of five separate projects. These are coordinated by a Programme Director hosted at the Swedish Polar Research Secretariat, providing important value-adding support services such as data handling and outreach activities. Researchers from a variety of disciplines are involved in the programme, covering a broad spectrum of scientific methods, traditions and research cultures. This diversity is reflected in the ways the research is presented in this report, and how results are achieved. The project reports collected here were written for a midterm review; final outcomes are not expected until late 2013. Nevertheless, these reports will play an essential role in defining a possible next phase of a Mistra Arctic programme, to commence in 2014. The potential for a more comprehensive approach will then be explored.

Anders Karlqvist
Chairman of the board
Mistra Arctic Futures in a Global Context
1. Introduction
This report forms the basis for the mid-term evaluation of the research programme Mistra Arctic Futures in a Global Context regarding Arctic Games, one of the five projects in the programme running from 1 January 2011 to 31 December 2013. Arctic Games research is being carried out by an international team possessing expertise in different social-science specialities, including economics, game theory and sociology. The aim is to develop and apply a transdisciplinary framework for identifying sustainable options for governing the utilization of natural resources in the Arctic. The project contributes to building capacity to perform social-science research on Arctic issues, by co-funding four PhD students and a number of researchers for which the Arctic has not previously been in focus. The research team is presented in Table 1, and can be seen on page 8 at windy Unstad in Lofoten, Norway, 8 March 2012. Detailed presentations of each team member are found in the Project Plan that was approved by Mistra in May 2011 (deliverable #0; see Table 2 for all deliverables indicated by “#”).
In this report we present the status of the project as of 31 March 2012. The report is structured, in part, around Arctic Games’ stepwise framework (Figure 1). The motivations for and aims of the project are explained in Section 2. Preliminary findings, corresponding to framework Steps 0 and 1 in Figure 1, are summarized in Section 3. Continued work and expected outcomes, corresponding to Steps 2, 3, and 4, are discussed in Section 4. Project activities, including project deliverables (Table 2) and outreach and communication (Table 3), are summarized in Section 5. Finally, project activities are linked (Table 2) and outreach and communication (Table 3), are summarized in Section 4. Project activities, including project deliverables outcomes, corresponding to Steps 2, 3, and 4, are discussed in Section 4. The centre for Economic and Financial Research (CEFR), Moscow (Russia), www.cofc.ru

Department of Economics, Stockholm University (Sweden), www.m.iu.se

Division of Environmental Strategies Research, Royal Institute of Technology (KTH), Stockholm, Sweden, www.kth.se

EnviroEconomics Sweden, Umea (Sweden), www.eesweden.com

The Centre for Economic and Financial Research (CEFIR), Moscow (Russia), www.cofc.ru

University of Nordland, Bodø (Norway), www.uin.no

In Table 4, financial details are included in Section 6. More details about project results through 31 December 2011 can be found in the 2011 Annual Project Report (#1). The future development of the Arctic is of global interest, as it is indispensable for ensuring global ecosystem health, peace and prosperity. The area poses decision-making challenges due to strategic interests in resources in the region (e.g., oil and gas, fisheries, tourism), and the potential for new shipping routes (AGP 2010). Under a faster-than-expected global-warming scenario, confrontations between stakeholders (nation states, multinational corporations, indigenous peoples, etc.) are likely to increase, which will exacerbate the problem of increasing global resource scarcity. Effective governance must incorporate these interests while balancing several unsolvable financial, social, cultural and ecological trade-offs. Future decision-making will likely address issues such as resource extraction, economic growth, sustainable management of fisheries, preservation of natural, cultural and landscape values, and opening up new transportation routes. The challenge for future Arctic development is to evaluate resource trade-offs and the strategic behaviour of various stakeholders in a manner consistent with social profitability and sustainable development, and to do so under the auspices of efficient and accepted governance structures. Existing social-science tools require improvement, to better support decision making and avoid potentially-costly resource conflicts.
used in diverse contexts, such as politics, economics, litigation procedures, contract theory, auctions etc., and is suitable in the Arctic to help anticipate and avoid resource conflicts among stakeholders. The strength of this approach is that it can be used to break down complex interactions, in order to better understand core conflicts so that decision makers can make improved and more informed decisions. But because game theory necessarily requires simplification, it is best complemented with the other components below.

Environmental Governance is the study of how decisions about environmental issues are made, and is a function of the structures and processes in societies that shape and distribute power and actions, e.g., laws, regulations, institutional organization, design of property rights, negotiation, public consultation and other decision-making processes (Lubell et al. 2006). Governance supplements the game theory models in our framework by enriching the discussion with real-on-the-ground contextual information regarding specific conflicts. Governance issues are particularly salient in the Arctic, which is characterized by a diverse set of conventions, agreements and national legislation. Because a binding treaty for the entire region (as in the Antarctic Treaty) is unlikely, the Arctic Council will come under increasing pressure to support effective governance, which has been the focus of extensive research in recent years (e.g. Young 1998, Ostrom 2005 and 2007).

The project has selected the Lofoten-Barents Sea area as the case study area to which we will apply – and subsequently improve – the framework. This case study will not only provide relevant information for local, regional and national stakeholders in Norway but, because it was chosen as emblematic of Arctic conflicts today, it will provide a number of generalizable lessons that can be transferred to other resource conflicts in the Arctic. A Reference Group of stakeholders linked to the case study is presently being established. This process was initiated by a face-to-face stakeholder meeting in Bodo in March 2012 ([m], [r], see Table 3 for all activities indicated by a letter within “[”]). Further, the case study selection has helped us to extend our network of contacts through collaborations with economists in Norway ([f], [o]), oil-spill specialists in Stockholm ([j]), and an ecologist at the Beijer Institute of Ecological Economics ([k]). We are currently seeking complementary funding to expand and improve our valuation study ([h]), which we augur as the key data-collection efforts.

3. Preliminary findings

Preliminary findings are based on Steps 0 and 1 in Figure 1. See the 2011 Annual Project Report (#1) for more detailed findings.

a. Step 0: Identifying case study and potential futures

The project has selected the Lofoten-Barents Sea area as the case study for developing the framework. Located in this greater Barents Sea and the High Arctic ecosystem, this area is a key habitat for migratory birds, mammals and fish. Lofoten is a spawning ground for the Northeast Atlantic Cod, one of the world’s most productive fish stocks (Durant et al. 2008), and is consequently of importance for the entire Barents Sea ecosystem. The continental shelf edge outside Lofoten is also a rich source of oil and gas, and represents potential oil revenue for the Norwegian government. The diverse values at stake – ES, tourism, fisheries, and oil and gas revenues – involve various stakeholders, each with diverse respects for a microcosm of potential Arctic disputes. Studying stakeholders in Lofoten may help to illuminate common strategies that may arise elsewhere in the Arctic.

b. Step 1: Mapping inputs for the case study

Step 1 involves mapping key research inputs to apply the framework to the Lofoten case study, and was a major focus of efforts during the first project year. The mapping activities listed below focus on existing knowledge gaps, which were found to be a spawning ground for the research. The research gaps indicate a need for collecting social-science data for the Arctic. As will be illustrated below, such data and results need to be combined with natural-science data and results. Doing so necessitates collaboration between natural scientists, such as ecologists, and social scientists, such as anthropologists. Identifying combinations of this kind that are crucial for supporting decision-making is an important area for future work, even beyond this research project.

The purpose of stakeholder mapping is to assist in designing an appropriate game, i.e., identifying alliances that may form and to help inform the development of a realistic oil spill scenario for the valuation study (see below). The main data sources for this mapping effort include the Norwegian management plan (Meld. St. 2010) and an initial stakeholder meeting in Bodo organized by the project ([m]). The primary stakeholders in Lofoten include the oil industry, the tourism industry, NGOs, local communities (the public) and local politicians (see #1). Members of these groups have diverse opinions about future oil extraction. The oil industry argues that oil poses little risk and is vital for the region’s growth, given the current global oil industry. The fishing and tourism industries suggest that their economic contribution is more sustainable. We find that heterogeneity among Lofoten stakeholders in general makes it difficult to assess the benefits of oil extraction. The research suggests that our valuation study (#8) will make an important contribution. Further, the Bodo stakeholder meeting led to the conclusion that oil spill scenarios are complex and require input and involvement from diverse stakeholders (see [j]).
Ecosystem services (ES) mapping and associated values. The purpose of surveying environmental resources is to identify the most relevant ES in the study area, the values at stake, and the most significant risks to those values. This requires knowledge of key ecosystem characteristics of the area. We find that an “oil extraction future” poses the most significant risk (#3). Further, we find that oil transport is more likely than actual extraction to cause an oil-spill impact. This has consequences for the ES impacts and subsequent valuation (#8, #9). The ES value mapping included a review of the literature on oil-spill impacts in the Arctic. The search focused on stated preference valuation studies, because we anticipate existence values to be significant. Further, the search focused on impacts to ES in the Lofoten-Barents Sea, since it represents a key component of the project. Our review suggests a large knowledge gap. One of the few relevant ex ante valuation studies (Carson et al. 2003 following the Exxon Valdez spill) is too dated to be relevant to today’s Arctic context. Further, we believe that ex ante studies – where respondents are asked about their willingness to pay to prevent a future spill – are particularly important, because they capture not only the value of the ES loss but also the respondents’ perceived risk of a future spill. Both components are important in assessing the social trade-offs of requiring increased spill-prevention measures. Further, most studies focus on the total economic value of an industry (e.g., total profits of tourism), which is less relevant than the marginal loss of value associated with an oil spill (e.g., reduced tourism visitation due to an oil spill). These findings motivate our current approach, used in #8, to filling this “valuation” knowledge gap. Our work here will be strengthened thanks to cooperation with Åsa Jansson (an ecologist at the Beijer Institute), Norwegian experts, oil-spill experts and stakeholders (see #9).

Economic-activity mapping. The aim of economic-activity mapping is to gain an improved understanding of the economic incentives of stakeholders in the Lofoten area; who stands to win and lose from different futures? This is important information for a cost-benefit analysis (CBA) and for developing a game model (#4, #5). We conclude, for example, that an oil-spill scenario is a policy-relevant future in Lofoten, in part because it has the potential to impact several industries (including fishing and tourism). We have conducted an in-depth tourism study (#2) in order to better understand the unique tourism industry in Lofoten and to develop a baseline for the WHA future. As an emerging Arctic industry, tourism represents a middle road between the 400-year-old tradition of resource mining and more recent conservation concerns. Lofoten has one of the most developed tourism industries in the Arctic and, having grown organically over the last 100 years, is a good indicator of how Arctic tourism can develop. We find that tourism has developed in a “cluster manner,” where accommodations based on the traditional fisherman’s shack (rorbu) form a close network with the cultural heritage segment, local food producers, and the new “experience economy” (e.g., outdoor activities like surfing). Members of this network of businesses support each other by directing tourists to each others’ products. Even large hotel chains and cruise companies have had to adjust to the cluster culture of cooperation and their rules of conduct when starting operations in Lofoten. This study will form the basis for a scientific paper (#6). Further, we will explore whether this study can complement findings in the Arctic Futures project From Resource Hinterland to Global Pleasure Periphery?

4. Expected outcomes

The focus of remaining work in 2012 and 2013 will be on synthesizing mapping information from the Lofoten case study for incorporation into Steps 2, 3 and 4 of the framework, and developing the final transdisciplinary framework.

a. Step 2: Identifying costs and benefits to stakeholders

Step 2 will provide key information needs related to oil-spill impacts. First, the successful Bodø meeting in March 2012 will be followed up with more contacts with this stakeholder group. Second, we will present the results of the ES mapping (#8) at an international conference in Rio de Janeiro in June 2012. Third, we will carry out a contingent
valueation survey of residents in Norway to estimate willingness to pay for reducing the risk of oil spills in the Lofoten area (#8), with a pilot study planned for the fall of 2012 and analysis by the spring of 2013. These ES and cultural values are key inputs for the CBA (#9), which will provide concrete policy guidance on, e.g., optimal extent of oil-spill prevention measures. Further, the results will provide key inputs to the game-theory analysis, reducing uncertainty in the gaming and thus improving the resulting information for decision makers (see #5).

b. Step 3: Setting up games and solving them

Step 3 incorporates local mapping information (Step 1) and costs and benefits (Step 2) to improve the game model (#4), in order to better understand the strategies of different actors. The model will go beyond the obvious question of whether or not to drill for oil, and consider possibilities for agreements between stakeholders, e.g., can the fishing industry support oil exploration in exchange for concessions (“side payments”) from the oil industry? Can the Government require the oil industry to fully compensate the local fishing industry, the centralized governance structure in Norway, and the fact that indigenous people do not play a significant role. Thus, the final framework will have to consider how to generalize these specific lessons to a broader Arctic context. Further, some key tasks in developing the final framework are to demonstrate a link between the project components (e.g., between ES and economic valuation, and prevention measures. Further, the results will provide key inputs to the game-theory analysis, reducing uncertainty in the gaming and thus improving the resulting information for decision makers (see #5).

c. Step 4: Evaluating results and existing governance structures

Step 4 requires integrating the four project components. For example, the outputs of Step 2 (costs and benefits) are expected to play an important role in Step 3 (setting up games). In Year 4 we will evaluate existing governance structures based on project findings. Further, #9 involves an assessment of outcomes with respect to social profitability and distributional impacts. For example, if outcomes are costly (e.g., extensive lobbying), then alternative governance structures may be suggested (e.g., collaborative or participatory). We will also consider how the results of the CBA in #9 may or may not lead to effective and/or “fair” governance. These activities will primarily occur in the third year of the project, but integration between the components will be ongoing.

d. Final framework

Developing the final framework document (#10, #12) will require synthesizing the lessons learned in the Lofoten case study. However, the case-study approach inevitably addresses site-specific issues in Lofoten, e.g., uniqueness of the tourism industry, the centralized governance structure in Norway, a predominantly “two player” game-theory model (oil and fishing industries), and the fact that indigenous people do not play a significant role. Thus, the final framework will have to consider how to generalize these specific lessons to a broader Arctic context. Further, some key tasks in developing the final framework are to demonstrate a link between the project components (e.g., between ES and economic valuation, and prevention measures. Further, the results will provide key inputs to the game-theory analysis, reducing uncertainty in the gaming and thus improving the resulting information for decision makers (see #5).

5. Project deliverables and activities

All project deliverables, abstracts, and expected delivery dates are presented in Table 2. Other project activities, including outreach and communication, are presented in Table 3. Finally, the activities in these two tables are linked to the expected project outcomes as described in the Project Plan (#9) in Table 4.

### Table 2: Project Deliverables

<table>
<thead>
<tr>
<th>Deliverable #</th>
<th>Date</th>
<th>Preliminary title and abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td>#0</td>
<td>9 May 2011</td>
<td>Arctic Games Project Plan</td>
</tr>
<tr>
<td>#1</td>
<td>7 Feb 2012</td>
<td>Arctic Games Annual Report, year 1 (2011)</td>
</tr>
<tr>
<td>#2</td>
<td>Complete April 2012</td>
<td>Lofoten Tourism Futures: Actors and Strategies (Fabris and Sandberg 2012)</td>
</tr>
<tr>
<td>#3</td>
<td>Final 30 April 2012</td>
<td>The economic value of ecosystem services (ES) at risk from oil spills in the Barents Sea to be presented at the UNESCO Conference in June 2012, see [2] The Arctic is a highly important region for future oil extraction and other economic activities, including shipping. Many of the ecosyestms in the Arctic are sensitive and already under pressure, and clean-up and recovery processes may be slower there compared to other regions, due to cold water, harsh weather conditions, and long distances between ports, and other infrastructure supporting preparedness. In this paper, we map ES that might be affected from future oil spills in the Arctic, using the Barents Sea as a case.</td>
</tr>
<tr>
<td>#4</td>
<td>Draft June 2012</td>
<td>Incomplete information in contests – oil exploration in Lofoten</td>
</tr>
<tr>
<td>#5</td>
<td>Draft Sept 2012</td>
<td>Games in the Arctic: Applying game theory to Arctic challenges</td>
</tr>
<tr>
<td>#6</td>
<td>Draft by Dec 2012</td>
<td>Games Lofoten case with Arctic tourism development processes found in other areas of the Arctic, e.g. Russia, Greenland and Canada. The paper will draw on results from another Arctic Futures Project from Resource Hinterland to Global Pleasure Periphery</td>
</tr>
</tbody>
</table>
| #7 | Draft version by Spring 2012 | International concerns in domestic natural resource governance in the Arctic. In this paper we explore how the issues of crossing governance boundaries – in particular the agenda and issues on the international level – influence decision making with respect to an Arctic nation-state’s management of its natural resource assets. The paper will highlight some of the challenges of decision-making in the Lofoten coastal area for oil development or tourism. The future of Lofoten is dependent on national (jurisdiction and concerned stakeholders are to be found from very local to international levels. We discuss how international concerns are used tactically in domestic resource battles in the Arctic, and compare this approach to other approaches in the Arctic.
In this paper we present the results of an ex ante economic valuation study focusing on the willingness of the Norwegian general public to pay to avoid a future oil spill in the Lofoten area. The main economic sectors in the Lofoten area are the oil and gas industry, fisheries, and tourism. To varying degrees, these sectors affect and depend on ES such as diversification, recreation, and scenery. A monetary value of avoiding a decreased provision of ES will be estimated by analyzing the impact on ES resulting from a future oil spill, as well as existing policy measures, using the contingent valuation method. The results of the paper are of interest, as we believe that non-use values will represent a large share of the total economic value of ES in Lofoten, and the Arctic in general.

In this paper we present the results of our development of an analytical framework by combining game theory, studies of environmental governance, cost-benefit analysis and economic valuation of ecosystem services. The framework is based on the Lofoten-Barents Sea case study, but its general applicability to other Arctic issues will be discussed.

In this paper we will detail specific project accomplishments to date; summarize the overall project, and present the final transdisciplinary framework. In this report we will: (1) detail specific project accomplishments to date; (2) summarize the overall project, and; (3) present the final transdisciplinary framework.

This report will contain a description of the project work accomplished in 2012. The economic value of ecosystem services (ES) in Lofoten - a contingent valuation study


This paper will present the results of our development of an analytical framework by combining game theory, studies of environmental governance, cost-benefit analysis and economic valuation of ecosystem services. The framework is based on the Lofoten-Barents Sea case study, but its general applicability to other Arctic issues will be discussed.

This report will contain a description of the project work accomplished in 2012. The economic value of ecosystem services (ES) in Lofoten - a contingent valuation study


In this paper we will detail specific project accomplishments to date; summarize the overall project, and present the final transdisciplinary framework. In this report we will: (1) detail specific project accomplishments to date; (2) summarize the overall project, and; (3) present the final transdisciplinary framework.

This report will contain a description of the project work accomplished in 2012. The economic value of ecosystem services (ES) in Lofoten - a contingent valuation study

The Arctic Games budget of SEK 6.6 million covers a project period of three years. Ninety-one percent of the budget is used for personnel costs (see Table 1 for persons-months) including overhead. The remaining nine percent is used primarily for travel and data collection. A detailed budget is available in the Project Plan (HP in Table 2). The year 1 instalment of SEK 0.1 million is due to travel and data collection costs anticipated for 2012-2013.

For 2012-2013, 1.875 million was consumed by 31 December 2011. The positive balance received from Mistra in March 2011 was SEK 1.975 million, of which SEK 1.875 million was available in the Project Plan (#0). The year 1 instalment costs (see Table 1 for persons-months) including overhead. The remaining three years. Ninety-one percent of the budget is used for personnel costs (see Table 1 for persons-months) including overhead. The remaining nine percent is used primarily for travel and data collection. A detailed budget is available in the Project Plan (HP in Table 2). The year 1 instalment of SEK 0.1 million is due to travel and data collection costs anticipated for 2012-2013.
“The Arctic is hot,” Sweden’s Arctic Ambassador Gustaf Lind recently observed. His comment referred not to the physical climate, which has received so much attention, but to rapid changes in the political climate. Until recently, the Arctic was the prerogative of organizations interested in specific scientific research projects, military-strategic control, or the direct administration of northern citizens. As the Arctic has become more firmly embedded within the global political-economic system—and its residents perceived as active stakeholders in decision-making—interest in its present and future has spread rapidly among NGOs, associations of indigenous Arctic peoples, international organizations like the EU and the UN, and geographically distant states such as China, Korea, India, and Malaysia. Expertise in the social sciences has consequently become essential to understanding the present and future of the Arctic.

Our research project is located at the core of this ongoing change. We embrace the challenge to build the competencies necessary to better understand the Arctic futures scenarios that are continuously being produced today. This research is intended to reveal processes through which certain—but not all—voices are heard, and from those processes to derive tools that allow us to listen more carefully and act more wisely.

CONTACT:
Sverker Sörlin, project leader, Division of History of Science and Technology, KTH, Royal Institute of Technology, Stockholm: sorlin@kth.se
Nina Wormbs, co-leader, Division of History of Science and Technology, KTH, Royal Institute of Technology, Stockholm: nina@kth.se
that are needed in the humanities and the social sciences; a process that gathers pace with every year. The International Geophysical Year (1957–58) – often considered a landmark in polar research – focused entirely on the natural sciences. But during the 2007–2009 International Polar Year, some 30 percent of the research, in addition to education and outreach, focused on projects outside the “hard” sciences. The most recent triennial congress of IASSA (the International Arctic Social Science Association) was attended by several hundred scholars and policymakers.

Sweden has long played an important role in natural-science research in the Arctic, but its capacity in the social sciences and humanities remains under-developed. The Swedish Polar Committee gained its first non-natural-science member (Sverker Sörlin, leader of the present project) as late as 1997. Our project aims to build both new knowledge and new capacity, to foster a new generation of scholars capable of effectively addressing Arctic challenges of today and tomorrow, drawing from the wealth of networks (both Swedish and international) emerging in fields related to polar research in the social sciences and humanities.

**Project background**

Our project grew out of a conviction that the present burst of interest in the Arctic has produced a plethora of visions of the future of the Arctic, without a corresponding level of critical analysis. There is an urgent need to think about why and how future Arctic challenges of today and tomorrow, drawing from the wealth of networks (both Swedish and international) emerging in fields related to polar research in the social sciences and humanities. Our project grew out of a conviction that the present burst of interest in the Arctic has produced a plethora of visions of the future of the Arctic, without a corresponding level of critical analysis.

During its first year, this project has taken a distinct and important place in the flourishing international ecosystem of research in the polar social sciences, particularly the dynamic research environment in Stockholm. During the International Polar Year, KTH played prominent roles in: the project LASHIPA (Large Scale Historical Industrial Exploitation of Polar Areas), financed by the Swedish Research Council and other international funding agencies, and supported by Swedish Polar Research Secretariat; an international Polar year (IPY) project on the geopolitics of polar field stations coordinated with Scott Polar Research Institute at Cambridge University; the transdisciplinary project Arctic Norden, financed by Riksbankens Jubileumsfond, and; Models, Media and Arctic Climate Change, financed by Formas. Members of the project played important roles in the Polar Geopolitics seminar series funded by the Economic and Social Research Council (UK) and the European Research Council project The Earth under Surveillance: Geopolitics, Climate Change, and the Cold War Legacy. The Arctic Resilience Report, an Arctic Council project led by SEI and Stockholm Resilience Centre, has commenced in parallel with this Mistra project.

Two books provide pertinent examples of the synergies between the present project and its international counterparts:

- **When the Ice Breaks: Media, Science, and the Politics of Climate Change** (New York, 2012) is a case study of how past and present projections of future sea ice retreat have been depicted in the media and treated politically in the US, Canada, Russia, and the Nordic countries. This book, conceived in the fall of 2010, is edited by project participants Nina Wormbs and Annika E. Nilsson with Miyase Christensen (KTH), and more than 75 percent of the text is written by project participants.
- **Assessing Arctic Futures.** The plural is crucial. It is an insight which underpins our ongoing research. The first emerged directly out of the project idea, as evidenced by the title: "Assessing Arctic Futures." The plural is crucial. It is an insight in its own right to realize that a future is both a commodity and a political concept that different actors fight over. Studying the competition between different attempts to gain hegemony over the discourse of the future – an approach we present as novel – is a central theme of our research. Careful study of past attempts to construct futures for the Arctic de-naturalizes persistent assumptions that underpin articulations of the future. The second insight concerns the role of science as politics, building on work by scholars such as Sheila Jasanoff and Susan Owens. The conventional view that science is a neutral source of data, that is then applied to produce better decision-making, fails to fully capture the political impulses that shape scientific activity. In all our periods of investigation (the early 20th Century, the Cold War, Arctic regionalization during 1990–2000, and the present re-territorialization), we consistently find that science does not come before politics, but that politics comes before science. Science and politics work together in the construction of futures that are designed to serve as carriers of national and other interests. From budgetary processes in state capitals below the Arctic Circle all the way to high-latitude field sites, science is stamped by social, political, and economic priorities: concerns for hydrocarbon and mineral abundance, fisheries and ecosystem health, sea ice thickness and extent, and many more.
Our final key insight so far concerns the status of climate change as a political resource. Much current discussion about the future of the Arctic presents climate change as a force with the capacity to exclusively determine future action. The 1925 Svalbard Treaty, the 1994 United Nations Convention on the Law of the Sea, the 1996 establishment of the Arctic Council, and the 2008 Ilisuait Declaration can all be regarded as steps in a gradual process of integrating Arctic spaces into existing political and economic systems. These governance regimes have naturalized the values that prevailed at particular historical moments and “filtered out” dissenting voices and visions of the present and future Arctic, not least through their authority to define who constitutes a legitimate Arctic stakeholder. Focusing on the origins of this authority redirects attention toward the political contexts in which climate change is articulated as a crucial issue for the future of the Arctic, recognizing that even these seemingly naturalized discourses are constructed.

Scientific approach and general outcomes

The research team has prioritized the creation of a methodological framework capable of structuring our future output from the perspective of three interrelated categories flagged in the project title: voices, resources, and governance. Today’s visions, and the voices behind them, are analyzed in relation to longer-term historical and geopolitical forces – sometimes stretching back over a century – that have shaped modern conceptions of the Arctic. The term “voices” highlights the fact that it is actors (individual or institutional) rather than abstractions (such as climate change or demand for hydrocarbons) that articulate visions, create and uphold politics, and perform actions that shape the future of the Arctic. We relate both of these concepts to “governance,” i.e. the means through which power over people, places, and objects is exercised (including but not limited to political structures such as the Arctic Council, or legal instruments such as UNCLOS). The strength of this framework is that it emphasizes human agency; sea-ice retreat or global oil prices are recognized as components of the future articulated by actors rather than forces against which politics is helpless.

Our approach derives inspiration from actor-network theory, a sociological framework that has proved highly stimulating for analyses of science and policymaking. There are also similarities to the concept of “political ecology,” used in relation to the political and economic networks rather than being a priori qualities. Our research team has prioritized the creation of a research framework that is developed in a stand-alone academic paper, which is in the final stages of completion (Avango, Nilsson, and Roberts). It has also already started to underpin other research within the project (Depledge and Roberts; Avango, and Roberts). This approach also “de-privileges” the Arctic by embedding it in existing discourses and geopolitical patterns.

Finally, our analyses de-construct the most prominent narrative in current future visions of the Arctic – the idea that a decrease in sea ice drives the envisioned version of a future change called “Arctic amplification” will almost by necessity lead to an increase in shipping and exploitation of natural resources in the region. There have already been several quests for energy resources in the Arctic over the 20th century, and none were predicated on a discourse of global warming and melting sea ice. On the contrary, when there actually was a considerable warming of the Arctic (between around 1920 to 1950), it was not connected to enhanced resource use. Indeed, companies then articulated visions of the future in which they would successfully domesticate the Arctic through science-based industrial technology, turning the ice into a challenge that could reveal expert ability (Avango and Höhler, in press).

Competence building and staffing

The original staffing of this project reflected a wish to meet the Mistra call for building competence, and combine members with extensive experience in political, historical, and archaeological studies of the Arctic with scholars who are able to bring expertise in cognate areas to the research programme. This blend of competences has successfully enhanced the group’s capacity to produce new conceptual tools, rather than merely uncover new data.

The project application was written by a team of six scholars, all of whom have worked in the project during the first year. Four members of this team have long histories of Arctic engagement, while two are relatively new to Arctic research. The cluster of experienced Arctic scholars at KTH has provided a vital home for our research. We are building further collaborations in Stockholm with the Defence University College, the Stockholm Environment Institute, and the Stockholm Resilience Centre, and internationally by building a research group in St. Petersburg and through our multifaceted cross-breeding with other projects. So far, we have three PhD students on our team. As new graduate students are hired at KTH in the coming years, this number is likely to grow.

We also build competence by bringing new expertise to Stockholm. Roberts will move to Stockholm in 2012 for what promises to be a multi-year stay. We will have another postdoctoral scholar, and additional mid-career scholars from Sweden and the UK. By the end of 2013, we will have produced one PhD, one post doc, and established several mid-career and senior Arctic scholars in the Swedish humanities and social-science research communities.

Conference and workshop participation, project management and new data

Project members have participated in a range of conferences, workshops, and seminars (see the full list under Communication on page 64–65). Key events include the Seventh International Congress of Arctic Social Sciences (IPY 2011), where we presented the methodological approach for the project as well as results from ongoing research within individual work packages. Five project members participated in the IPY “From Knowledge to Action” conference in Montreal 2012. We have also travelled to core conferences in our respective disciplines, including environmental history, the history of science research communities. Table 1. First-year project staffing

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dag Avango</td>
<td>KTH, industrial archaeology (PhD 2005)</td>
</tr>
<tr>
<td>Julia Lajé</td>
<td>European University at St. Petersburg, history of science and environment (PhD 2004)</td>
</tr>
<tr>
<td>Annika E. Nilsson</td>
<td>Political science and governance (PhD 2007)</td>
</tr>
<tr>
<td>Peder Roberts</td>
<td>Stockholm, history of science and historical geography (PhD 2010)</td>
</tr>
<tr>
<td>Sverker Sörlin</td>
<td>KTH, history of science and environment, research policy (PhD 1988)</td>
</tr>
<tr>
<td>Nina Worton</td>
<td>KTH, history of technology and media (PhD 2003)</td>
</tr>
<tr>
<td>Ekatorina Kalenina</td>
<td>European University at St. Petersburg history</td>
</tr>
<tr>
<td>Eric Paglia</td>
<td>KTH, environmental history</td>
</tr>
<tr>
<td>Andrija Vlahky</td>
<td>European University at St. Petersburg, anthropology</td>
</tr>
</tbody>
</table>

Table 2. Anticipated additions to staff – 2012

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sabine Hilfer</td>
<td>KTH, science and technology studies (PhD 1999)</td>
</tr>
<tr>
<td>Patrik Larsson</td>
<td>University of Umeå, Centre for Sami Research (PhD Research 2000)</td>
</tr>
<tr>
<td>Paul Ward</td>
<td>SEar Cambridge History (PhD 2002)</td>
</tr>
<tr>
<td>Lisa-Marie van der Went</td>
<td>University of St. Andrews, History (PhD 2011)</td>
</tr>
</tbody>
</table>
Apart from regular smaller meetings, the project has arranged workshops in Stockholm, St. Petersburg and Strasbourg (relocated to Stockholm due to an Air France strike). We will continue and intensify this work mode during 2012 and 2013, aided by the relocation of Roberts to Stockholm and the arrival of visiting researchers. We have also convened joint meetings with other research groups with similar interests, notably “Exploring Greenland” (based at the University of Århus, Denmark) and “The Earth under Surveillance” (based at the University of Manchester, the University of Strasbourg, and the Autonomous University of Barcelona). Project members have also initiated the “Stockholm Arctic Seminars,” which commenced in March 2012.

Stakeholder interaction and network building
As part of the project, we are bringing the 2012 Calotte Academy to Sweden. The Calotte Academy is an ongoing forum dedicated to analyzing development relevant to the North through dialogue between researchers and policymakers interested in this region. The Academy has been part of the Northern Research Forum since 2002. The engagement is a long-term investment in establishing contacts with relevant local and regional stakeholders. Our strong engagement with the Academy links our project to a recently established thematic network on geopolitics and security that is jointly run by the Northern Research Forum and the University of the Arctic.

The Arctic Resilience Report is a new Arctic Council project led by Annika E. Nilsson. The project focuses on identifying the potential for shocks and large shifts in ecosystems services that affect human well-being in the Arctic, and evaluating strategies for adaptation and transformation in the face of rapid change. The project has been developed in close collaboration with the Swedish chairmanship of the Arctic Council, especially the Swedish Ministry of the Environment.

We have laid solid foundations for expanding the educational aspects of our outreach goals, with excellent prospects for continued benefit should support be available beyond 2013. One concrete outcome has already been achieved: the course
Reflections on the future orientation of the programme

With five projects, the Arctic Futures programme covers a broad swathe of the Arctic region. The programme is being highlighted, in

the Arctic and its future. The realization of desirable futures is

on strengths. One way to successfully utilize strengths is to

in the Arctic? Which values are inscribed upon governance

Core questions (such as

structures? How is knowledge from the natural sciences

involves a detailed study of the continued function of Cold-War

This project has already begun to generate a set of conceptual

tools that advance knowledge in the social sciences and

Expectations of outcomes

outcomes, while also contributing to the study of other

important problems that can benefit from an integrated

research approach – not least the questions of global

governance and sustainable development in a century likely to

be marked by anthropogenic climate change.

The Arctic Futures programme covers a broad swathe of the

Arctic region. The programme is being highlighted, in

the Arctic and its future. The realization of desirable futures is

on strengths. One way to successfully utilize strengths is to

in the Arctic? Which values are inscribed upon governance

Core questions (such as

structures? How is knowledge from the natural sciences

involves a detailed study of the continued function of Cold-War

This project has already begun to generate a set of conceptual

tools that advance knowledge in the social sciences and

Expectations of outcomes

outcomes, while also contributing to the study of other

important problems that can benefit from an integrated

research approach – not least the questions of global

governance and sustainable development in a century likely to

be marked by anthropogenic climate change.

The Arctic Futures programme covers a broad swathe of the

Arctic region. The programme is being highlighted, in

the Arctic and its future. The realization of desirable futures is

on strengths. One way to successfully utilize strengths is to

in the Arctic? Which values are inscribed upon governance

Core questions (such as

structures? How is knowledge from the natural sciences

involves a detailed study of the continued function of Cold-War

This project has already begun to generate a set of conceptual

tools that advance knowledge in the social sciences and

Expectations of outcomes

outcomes, while also contributing to the study of other

important problems that can benefit from an integrated

research approach – not least the questions of global
The Arctic is emerging as a distinct sub-region in an increasingly globalised world. Improving access to the Arctic is presenting new challenges and opportunities for the people and nation states of the Arctic region, and to the broader international community. As never before, the Arctic has become part of a complex set of political and economic dynamics linking actors within and outside the region.

At the heart of these processes are local, national, regional and international claims regarding identity, stewardship and sovereignty in respect to the territories and resources of the region. If the opening of the Arctic is to be stable and peaceful over the long term, it will be critical to fashion political and security arrangements capable of managing the Arctic’s transformation and integrating the various claims on the region in a cooperative fashion.

The SIPRI project Arctic Futures: Managing Competition and Promoting Cooperation is designed to examine the challenges emerging around these issues. A key set of questions is at the
core of the project. How are the multi-level interactions of sub-state actors, states and multilateral organisations shaping political and security order in the Arctic? What are the domestic and international interests and actors that drive the policies of Arctic states towards the region and how are their agendas evolving? How might the interests of Arctic and non-Arctic communities and states — the so-called Arctic ‘insiders’ and ‘outsiders’ — be integrated? What implications does the opening of the Arctic have for existing regional governance and security frameworks, notably those in Europe?

In addressing these questions, researchers involved in the SIPRI project will produce a variety of publications designed to provide information and analysis on contemporary developments in the Arctic. We also seek to engage policymakers, the media and experts in discussions regarding Arctic political and security issues, with a view to building confidence and sharing knowledge.

The aim of this work is to identify practical steps to reduce risks, misunderstandings and suspicions during a time of change in the region, and to promote cooperation relating to the Arctic. To achieve the main project goals, the research team is utilizing SIPRI’s unique international networks, extending through Europe and North America to Northeast Asia, as well as building new contacts and networks. For work in Northeast Asia, the SIPRI permanent presence in Beijing, China, is playing a key role. The SIPRI presence in Washington, DC, will be engaged in future North-American aspects of the Arctic project.

OUTCOMES AND RESULTS

During the initial phase of the SIPRI project Arctic Futures: Managing Competition and Promoting Cooperation, the research team has made significant contributions in five principal areas:

1. Developing a new way to theorise the emerging international politics of the Arctic;
2. Fashioning new expert and policy networks devoted to the Arctic and strengthening existing ones;
3. Collecting new data;
4. Building Arctic expert research capacity in Sweden;
5. Organising and participating in conferences to present new perspectives, data and theories on the international and security politics of the Arctic.

Theorising Arctic relations

To date, most of the work on the international politics of the Arctic has sought to understand developments in the region as the outcome of the various policies of different Arctic nation states. An original aspect of the SIPRI approach has been to develop a comparative framework for understanding relations in the Arctic, bringing both the domestic and global levels.

In the early phase of the project, a particular focus has been upon identifying domestic sources of Arctic policy in the various countries currently engaged with the region. Employing Robert Putnam’s idea of the ‘two-level game’ and drawing upon constructivist elements regarding the concept of ‘problem framing’ has allowed for a multi-level understanding of Arctic policymaking, with both top-down and bottom-up perspectives. In this approach, the state is not viewed as a unitary actor deploying evident national interests, but, rather, as containing various agents. Arctic policy is viewed as the product of domestic politics.

At the same time, global processes and actors are increasingly shaping developments in the Arctic. The SIPRI project has thus sought to articulate the policies of Arctic states — derived from domestic interests and ideas — in the context of emerging relations with non-Arctic countries (and their domestic processes), such as those of North-East Asia and the European Union, and the processes of international change. A particular focus of initial project work has been on mapping and explaining the emergence of a ‘spirit of cooperation’ around Arctic issues. Research has pointed to a shared interest by Arctic states in asserting their joint exclusive sovereignty over Arctic territories and determining the rules of the game for the future exploitation of the region. Increased global interest in the region lies at the heart of this interest in regional cooperation. This finding has led to further questions regarding the durability of multi-level coalitions and the capacity of the Arctic to strengthen networks between diverse parts of, this community.

Additionally, the SIPRI project has uniquely worked to forge new networks, including with experts and policymakers in non-Arctic states such as China and Northeast Asia and the European Union. Not only do these new networks include academic institutions and think tanks, but also policymakers and other stakeholders. Establishing links to these networks has enhanced access and research opportunities, and has also provided a means for a far wider dissemination of, and a higher impact for, research findings and publications.

Data collection

SIPRI has been engaged in gathering qualitative data through interviews in a range of countries. SIPRI researchers have met with representatives of ministries, industry, the military, think tanks, and universities. The project has also employed traditional SIPRI data-gathering methods, which rely on open sources, for instance in calculating the amount of military hardware procured for use in the Arctic.

New international expert and policy community networks

There has been important growth in recent years in the international epistemic community engaged in Arctic issues. The SIPRI project has sought to connect with, and to strengthen networks between diverse parts of, this community. Additionally, the SIPRI project has uniquely worked to forge new networks, including with experts and policymakers in non-Arctic states such as China and Northeast Asia and the European Union. Not only do these new networks include academic institutions and think tanks, but also policymakers and other stakeholders. Establishing links to these networks has enhanced access and research opportunities, and has also provided a means for a far wider dissemination of, and a higher impact for, research findings and publications.

Knowledge of security and political issues in the Arctic has been limited in Sweden. With the notable exception of FOI, few, if any Swedish institutions have looked at the role of security and international diplomacy in the Arctic as a whole. As a result, Sweden has produced few experts and generated little knowledge on this aspect of Arctic science. This capacity gap has meant that Sweden has not been well represented in international research projects and expert debates regarding Arctic security, for example the important multi-national research project Geopolitics of the High North initiated several years ago.

1 An index of interviews is published on the project’s webpage: www.arcticfutures.se/?page_id=70
In the brief period that the SIPRI Arctic project has been operational, it has become one of the go-to-places in Sweden, and internationally, when it comes to issues of security in the Arctic region. Building on SIPRI’s excellent reputation and extensive networks, the project has quickly become an established resource for knowledge on Arctic security. The truly multinational Arctic team at SIPRI, currently representing five nationalities (including a young Swedish researcher), has also contributed to a broader understanding of Arctic security issues than would have been possible with a more homogenous group. Perspectives from several relevant regions, different nations representing different interests and ideas, have been a unique opportunity, bringing together leading Chinese and Nordic experts to share knowledge and ideas, as well as an exercise in second-track diplomacy and confidence building. Ambassador von Uexkull of Sweden provided a keynote presentation and several Nordic ambassadors were present. The panel helped to further the work being undertaken at SIPRI to develop a framework for comparing national dynamics with a view to better understanding the nature and trajectories of interstate interactions on Arctic issues.

The research presented at the conference will form the basis for a series of academic articles to be published later.

**Conference and panels**

**Comparing Arctic Strategies: The Sources of National Policies for the High North**

The April 2012 International Studies Association (ISA) conference held in April 2012 in San Diego (USA) provided the opportunity for the SIPRI team to present some of their initial research findings. SIPRI organised a panel at the conference that brought together presentations by Neil Melvin and Ekaterina Klimenko, Kristofer Bergh, and Linda Jakobson, together with other leading international experts. The panel was designed to explore new perspectives on understanding international security and political relations issues relevant in the Arctic, and some thirty researchers in the fields of social and political science attended.

It was noted that, to date, much of the work on emerging international dynamics in the Arctic has focused on geopolitical or ‘liberal institutionalist’ accounts of the behaviour of the various actors. Resource opportunities are seen to be driving increased interest, for example, while shared norms about the special character of the region are promoting cooperation, notably through the development of the Arctic Council as a multilateral forum.

The panel aimed to introduce a further dimension to understanding Arctic engagements, through a comparative examination of the national processes of interest and policy construction focused on the Arctic. The focus of the papers was upon the ways in which the national approaches to the Arctic are shaped by trajectories of interstate interactions on Arctic issues. The conference opened with a statement by Sweden’s senior researcher), has also contributed to a broader understanding of Arctic security issues than would have been possible with a more homogenous group. Perspectives from several relevant regions, different nations representing different interests and ideas, have been a unique opportunity, bringing together leading Chinese and Nordic experts to share knowledge and ideas, as well as an exercise in second-track diplomacy and confidence building. Ambassador von Uexkull of Sweden provided a keynote presentation and several Nordic ambassadors were present. The panel helped to further the work being undertaken at SIPRI to develop a framework for comparing national dynamics with a view to better understanding the nature and trajectories of interstate interactions on Arctic issues.

The research presented at the conference will form the basis for a series of academic articles to be published later.

**Conflict and Cooperation in the New Arctic**

This symposium held in April 2012 was part of a SIPRI and University of Southern California (USC) collaboration aimed to prepare a group of USC students for their May 2012 visit to Sweden, Finland and Russia to conduct field studies on Arctic politics. Neil Melvin presented on “Energy and Environmental Security: Russia and the EU” and Kristofer Bergh presented on “Regional Cooperation and the Arctic Council.” Around 30 students, USC faculty and specially-invited guests attended the symposium.

**Chinese and Nordic Perspectives on Arctic Developments**

On May 10th SIPRI, together with the China Center for Contemporary World Studies (an influential foreign-affairs think-tank affiliated with the Central Committee of the Community Party of China), convened a one-day workshop in Beijing devoted to Nordic and Chinese cooperation in the Arctic. This was the first occasion where an official Chinese institution cooperated to discuss international relations in the Arctic region. The workshop provided a unique opportunity, bringing together leading Chinese and Nordic officials to share knowledge and ideas, as well as an exercise in second-track diplomacy and confidence building. Ambassador von Uexkull of Sweden provided a keynote presentation and several Nordic ambassadors were present. The panel helped to further the work being undertaken at SIPRI to develop a framework for comparing national dynamics with a view to better understanding the nature and trajectories of interstate interactions on Arctic issues.

The research presented at the conference will form the basis for a series of academic articles to be published later.

**Conference and panels**

The conference “The New Arctic: Building Cooperation in the Face of Emerging Challenges,” organised in Stockholm in cooperation with Swedish Institute of International Affairs (UIA) in April 2011, marked the onset of the Swedish Chairmanship of the Arctic Council and the launch of the SIPRI Arctic project. The conference opened with a statement by Sweden’s senior researcher), has also contributed to a broader understanding of Arctic security issues than would have been possible with a more homogenous group. Perspectives from several relevant regions, different nations representing different interests and ideas, have been a unique opportunity, bringing together leading Chinese and Nordic experts to share knowledge and ideas, as well as an exercise in second-track diplomacy and confidence building. Ambassador von Uexkull of Sweden provided a keynote presentation and several Nordic ambassadors were present. The panel helped to further the work being undertaken at SIPRI to develop a framework for comparing national dynamics with a view to better understanding the nature and trajectories of interstate interactions on Arctic issues.

The research presented at the conference will form the basis for a series of academic articles to be published later.

**Conferences and panels**

**The New Arctic: Building Cooperation in the Face of Emerging Challenges**

The conference “The New Arctic: Building Cooperation in the Face of Emerging Challenges,” organised in Stockholm in cooperation with Swedish Institute of International Affairs (UIA) in April 2011, marked the onset of the Swedish Chairmanship of the Arctic Council and the launch of the SIPRI Arctic project. The conference opened with a statement by Sweden’s senior researcher), has also contributed to a broader understanding of Arctic security issues than would have been possible with a more homogenous group. Perspectives from several relevant regions, different nations representing different interests and ideas, have been a unique opportunity, bringing together leading Chinese and Nordic experts to share knowledge and ideas, as well as an exercise in second-track diplomacy and confidence building. Ambassador von Uexkull of Sweden provided a keynote presentation and several Nordic ambassadors were present. The panel helped to further the work being undertaken at SIPRI to develop a framework for comparing national dynamics with a view to better understanding the nature and trajectories of interstate interactions on Arctic issues.

The research presented at the conference will form the basis for a series of academic articles to be published later.

**The New Arctic: Building Cooperation in the Face of Emerging Challenges**

Conference held in April 2012 in San Diego (USA) provided the opportunity for the SIPRI team to present some of their initial research findings. SIPRI organised a panel at the conference that brought together presentations by Neil Melvin and Ekaterina Klimenko, Kristofer Bergh, and Linda Jakobson, together with other leading international experts. The panel was designed to explore new perspectives on understanding international security and political relations issues relevant in the Arctic, and some thirty researchers in the fields of social and political science attended.

It was noted that, to date, much of the work on emerging international dynamics in the Arctic has focused on geopolitical or ‘liberal institutionalist’ accounts of the behaviour of the various actors. Resource opportunities are seen to be driving increased interest, for example, while shared norms about the special character of the region are promoting cooperation, notably through the development of the Arctic Council as a multilateral forum.

The panel aimed to introduce a further dimension to understanding Arctic engagements, through a comparative examination of the national processes of interest and policy construction focused on the Arctic. The focus of the papers was upon the ways in which the national approaches to the Arctic are shaped by trajectories of interstate interactions on Arctic issues. The conference opened with a statement by Sweden’s senior researcher), has also contributed to a broader understanding of Arctic security issues than would have been possible with a more homogenous group. Perspectives from several relevant regions, different nations representing different interests and ideas, have been a unique opportunity, bringing together leading Chinese and Nordic experts to share knowledge and ideas, as well as an exercise in second-track diplomacy and confidence building. Ambassador von Uexkull of Sweden provided a keynote presentation and several Nordic ambassadors were present. The panel helped to further the work being undertaken at SIPRI to develop a framework for comparing national dynamics with a view to better understanding the nature and trajectories of interstate interactions on Arctic issues.

The research presented at the conference will form the basis for a series of academic articles to be published later.
Political Science Association conference in New Orleans (USA), and at the Institute of International Affairs/Centre for Small State Studies at the University of Iceland, Reykjavik.

OUTREACH

The SIPRI Arctic project works closely with the SIPRI communications department to achieve maximum exposure for our output. A dedicated part of the SIPRI website has been established for the Arctic project in the English and Mandarin languages: www.sipri.org/research/security/arctic. Releases of new material and publications of articles and op-eds (opposite the editorial page) are timed to coincide with Arctic events in order to increase visibility and reach larger audiences. SIPRI Arctic research has recently been picked up by major international news outlets, inter alia the Washington Post, Aftonbladet, Moscow News and Le Devoir. For a detailed list of publications and presentations, see the Communications section on page 64–65.

Networks and international collaboration

Since the start of the SIPRI Arctic project, efforts have been made to strengthen SIPRI’s international network on Arctic issues. Partnerships and joint projects and events are being developed, or are already planned, with a broad range of actors. Initial cooperation has resulted in over €50,000 of additional research funding on Arctic issues for SIPRI during the first year of the Mistra project. In addition to the ones mentioned above, recent and ongoing collaborations include:

University of Southern California, USA
Besides the already mentioned symposium, SIPRI also hosted a group of students from USC, coming to Stockholm to do field research on the Arctic in May 2012. Further cooperation is planned.

Danish Ministry for Foreign Affairs, Denmark
SIPRI has been commissioned by the Danish Ministry of Foreign Affairs to prepare a report on the involvement and interests of Northeast Asian countries (China, Japan and Korea) in Arctic issues. The report will be presented in the Fall of 2012. Future cooperation and joint projects are also being planned together with several organizations and universities including the University of Reykjavik, Iceland, the University of Lower Silesia, Poland, The Norwegian Institute for Defence Studies and the Norwegian Institute for Foreign Affairs in Norway.

Stakeholder engagement

Part of SIPRI’s mandate is to inform and engage policy makers. Targeting the Arctic policy community has been a particular aim of the Arctic project over the past year. Senior Swedish Arctic officials have figured prominently in SIPRI events. The Beijing conference in May 2012 SIPRI provided the opportunity for Nordic and Chinese officials to meet and interact in informal circumstances, a concrete way of facilitating diplomacy between the Nordic countries and an important emerging Arctic player. SIPRI has also met with representatives of the local diplomatic community in Stockholm and with ministries for foreign affairs abroad, notably in the Russian Federation. In 2012, SIPRI is conducting a project on behalf of the Danish MFA designed to build contacts with the Arctic policy communities in China, Japan and South Korea.

AGENDA FOR FURTHER RESEARCH

The initial research conducted within the SIPRI Arctic project has already identified a number of key areas for future research:

Regional integration and the vertical integration of the Arctic into different regional contexts
As result of the impacts of climate change, the notion of a distinct integrated Arctic region has experienced a renaissance in recent years. Historically, however, there have been differing concepts of the Arctic stretching from the times of the great explorers, through the militarization of the Cold War, and up to the region’s relative obscurity for much of the post-Cold-War era. Today a ‘spirit of cooperation’ amongst the Arctic nation states...
Domestic Politics and Arctic Foreign Policy

The Arctic as a Region for the Projection of Global Power Relations

Domestic Politics and Arctic Foreign Policy

For Arctic states, other actors are seeking to integrate the Arctic into broader regional and international contexts. The EU is keen to assert its presence in the Arctic and to link the Arctic to a broader European space. Smaller sub-regional formations, for example the Baltic region, are exploring how the Arctic is linked to the wider emerging international political economy. Identifying the ways in which the Arctic is linked to the development of Arctic resources and transportation could have far-reaching impacts on economies and societies in Asia and Africa. Power relations in the Arctic region currently broadly posit a patchwork of bi- and multilateral efforts, none of them employing a holistic Arctic perspective. With political relations in the Arctic region currently broadly positive, there is a unique opportunity to design and build mechanisms and interfaces to promote security confidence in the region that can anticipate and reduce future tensions. In developing this research agenda, SIPRI will seek to draw on its extensive experience from similar exercises in Europe, Central Asia and the Korean Peninsula.
Introduction

Researchers in the project “Preparing for and responding to disturbance: Arctic lessons for Sweden” are analyzing the development of policy and crisis preparedness on issues that are expected to become increasingly important as a result of climate change and/or increasing globalization in northern areas. How do different northern countries respond to forest pest outbreaks and storms? How can the forest industry deal with economic crises? And how do municipalities respond to increased risk of flooding? Through comparative studies in Sweden, Finland and Canada, our researchers aim to draw lessons that will help Sweden to improve its preparedness for impending changes in the Arctic.

CONTACT:
Carina Keskitalo, Department of Geography and Economic History, Umeå University, project leader: carina.keskitalo@geography.umu.se

Researchers engaged in the project Preparing for and responding to disturbance: Arctic lessons for Sweden are analyzing selected environmental and economic stresses in Sweden, Finland and Canada. The aim of this work is to draw lessons for Sweden on how to cope with or adapt to increasing risk in these areas due to globalization and climate change, in particular in relation to Sweden’s largely forest-covered rural north. Four stresses and related themes are reviewed: 1) economic restructuring in forest use; 2) impacts of storms on forest use; 3) impacts of pest outbreaks on forest use, and; 4) municipal/local responses to flooding. Activities are underway in all four focal areas, in line with the plans described in the research proposal. It is expected that the work as a whole will contribute to improving understanding of how to deal with external disturbance in the form of economic and environmental stresses (the latter in particular with regard to extreme events), and thereby contribute to adaptation literature and possibilities to draw policy lessons for Sweden. Comparative articles, and in one case a comparative design developed within an international edited
book publication, are well under way. Primary authorship of the various articles has been distributed across the project team (Swedish, Canadian and Finnish participants).

This project is the result of long-term international collaboration between the three host centres: Umeå University, Sweden, the University of Lapland, Finland, and the University of Saskatchewan, Canada. The project is led and managed by Carina Keskitalo (Umeå University), with Monica Tennberg (University of Lapland) and Maureen Reed (University of Saskatchewan) as the lead partners. Previous areas of collaboration between these researchers include the International Polar Year (IPY) project CAVIAR (Keskitalo and Tennberg); and Mistra Forest Futures (Keskitalo and Reed). The project provides a further arena for continued international as well as domestic research collaboration, drawing on the established research traditions (both individual and collective) described below.

Carina Keskitalo organised a kick-off meeting in Umeå (January 2011) and a second meeting in Umeå (September 2011), and has planned the workload for the project in general. The next project meeting, held in May 2011, focused primarily on reviewing progress on the chapters for an international edited book publication to be published with Edward Elgar in 2011 (see Theme 4, below).

Main research themes

An overview assessment of impacts of economic crises, pests and storms on forestry in Sweden, Finland and Canada was developed as a baseline for the project, drawing upon – and for the first time comparing – existing studies.2 Utilising an adaptive capacity framework, the researchers showed that access to economic assets has been particularly important for adapting to economic disturbances, but is linked to institutional processes and governance arrangements. This is emphasised particularly in the Canadian case.

The study showed that institutional and governance arrangements played a larger role in adapting to natural disturbances (abiotic and biotic) in the case study areas. For example, both within the Canadian federal context and for Sweden within the EU context, the effective mobilization and deployment of assets through multi-level governance arrangements required for developing management and monitoring plans on issues as complex as invasive alien species is particularly challenging. The results of our assessment suggest that institutional development and foresight planning, as well as development of information and skills (on the part of the state (in Sweden) or province as well as at the federal level (in Canada)), could potentially play a larger role than they do at present in developing responses to climate change risks. In particular, there is a need to move beyond event-based, and some extent reactive, policy development, towards proactive integration of adaptation measures in forest management practice.

Theme 1: Economic restructuring in forest use

Under this theme, the research team is studying economic restructuring in forest use in response to economic crisis.3,4 A common theoretical framework focused on framing and methodological design has been developed. Semi-structured interviews are underway in Sweden and Finland to complement work undertaken in Canada.

Theme 2: Impacts of storms on forest use

A comparative study is underway on how the agenda-setting process regarding policies addressing pests has developed in the three countries.5 The theoretical and methodological frameworks for the study were developed based on a review of recent policy developments. In the review, particular emphasis was placed on progress in establishing and implementing policies addressing beeches, which have recently had large impacts in Sweden (after Gudrun) and in Canada. The researchers utilized agenda-setting theory to review how extreme events may have supported action towards policy development on forest pests. A general legal review (in cooperation with other projects) was undertaken. The final report is expected to be submitted in 2013.

Theme 3: Impacts of pest outbreaks on forest use

A comparative study is underway on how the agenda-setting process regarding policies addressing pests has developed in the three countries.6 The work under this comparative theme has been expanded to include the production of an international edited book, accepted for publication by Edward Elgar press.7 The book will contain reviews of how extreme flood events may impact both policy development and awareness of adapting. Both research in northern Sweden, Finland and urban cases from the Netherlands and Germany (the latter case also reviewing the extreme flood event in Dresden in 2002 that has been linked to the development of the EU Flood Directive) will be included. Following a period of internal and external review, the complete book will be submitted to the publishers in February 2013, for final publication later in the year.

Theme 4: Municipal/local responses to flooding

The work undertaken in this comparative theme has been expanded to include the production of an international edited book, accepted for publication by Edward Elgar press.8 The book will contain reviews of how extreme flood events may impact both policy development and awareness of adapting. Both rural case studies from northern Sweden, Finland and Canada and urban cases from the Netherlands and Germany (the latter case also reviewing the extreme flood event in Dresden in 2002 that has been linked to the development of the EU Flood Directive) will be included. Following a period of internal and external review, the complete book will be submitted to the publishers for final publication later in the year.

Extended research activities

In addition to the research activities described above, the project has supported: research on Sweden’s Arctic policy (relevant in order to be able to draw policy conclusions relevant to Sweden in year three of the project); a literature review on existing rural development research in northern Sweden, and; a review of globalization in the Arctic (relevant to better understanding multiple stresses (including economic change) and to provide context for the Swedish example)9 The research on Sweden’s Arctic policy reviews the development of Sweden’s Arctic policy in relation to different existing discourses on the Arctic (continuing one of Keskitalo’s established lines of enquiry).

The literature review constitutes a critique of the very limited

---

2 Carina Keskitalo, Kliin N., Bullock R., Smith A.L., Baxley B.D. (2011) “Preparing for and Responding to Disasters: Examples from the Forest Sector in Sweden and Canada” Forests 2(2):30-34. This work involved external Canadian researchers, demonstrating the broad collaborative and networking opportunities enabled by the project.

3 Carina Keskitalo, Emily Davies, Terhi Vuojala-Magga, Monica Tennberg (2011) “A comparative article, “Understanding government and industry responses to economic crisis in northern forest regions: Cases and Lessons from Canada, Sweden and Finland,” is in progress. The article is expected to be submitted in late 2012 or early 2013.

4 Co-authors currently include Monica Tennberg, Carina Keskitalo, and Joonas Vola (research assistant, Finland). The article is aimed to be submitted in 2013.

5 Co-authors currently include Carina Keskitalo, Maria Pettersson (Post doc in Carina Keskitalo’s sub-project Forest Governance funded by Mistra Future Forests) and Monika Maris (research assistant, Finland). The article is currently being updated.

6 Co-authors currently include Carina Keskitalo, Maria Pettersson (Post doc in Carina Keskitalo’s sub-project Forest Governance funded by Mistra Future Forests, and providing legal expertise), Emily Jane Davies, Terhi Vuojala-Magga.

7 Carina Keskitalo will edit the book, to be published with Edward Elgar press in 2013.


9 The work on Sweden’s Arctic policy reviews the development of Sweden’s Arctic policy in relation to different existing discourses on the Arctic (continuing one of Keskitalo’s established lines of enquiry).
extents to which Swedish domestic research in Norrbotten and Västerbotten counties has been taken into account in Arctic work, notably the 2002 Arctic Human Development Report. This review contributes to the understanding of the Swedish role in the Arctic. The review of globalization in the Arctic, co-authored by Carina Keskitalo and Chris Southcott, has been invited for inclusion in the second Arctic Human Development Report (AHDR-II), planned for 2014 as a report under the Arctic Council.

The project has also significantly contributed to capacity-building, in particular for the younger participants in the project. Dr. Ryan Bullock was co-author on the paper, “Preparing for and responding to disturbance: Examples from the forest sector in Sweden and Canada” published in Forests (Keskitalo et al 2011). For the current phase of the research, Ryan has contributed to research planning and design, preliminary data analysis and writing. He has taken the lead in planning and preparing a co-authored manuscript (under theme 1), in which the researchers will:

- a) Analyze the context of economic change and responses in each of the national cases, and
- b) Interview major forestry actors to assess their responses to crises and conflict.

The selected cases are Norrbotten in Sweden, Lapin lääni in Finland, and the Algoma District in Northern Ontario, Canada. Ryan developed a case-study protocol to help maintain consistency across cases and assist researchers in conducting their research (completed during the fall of 2011). This included developing a conceptual framework (based on social learning and framing theory and social-ecological systems concepts) as well as an initial coding scheme to be used to guide data collection and analysis for the multi-case study, to accommodate international cases. Ryan also helped to prepare a detailed paper outline/summary and has met and communicated regularly with team members to refine the analytical framework and the work plan (completed January 2012). He is currently using Nvivo data analysis software to code existing transcribed interview data for the Canadian case, and reviewing current literature. As lead author, he is also responsible for the ongoing revision of the draft paper, identifying potential journals for publication, and incorporating new draft materials. He is the lead for follow-up communication with team members involved in the work, especially to support ongoing data collection in Sweden and Finland.

Historian Dr. Merle Massie and term researcher Åsa Almstedt gathered flood data on communities in western Canada, to find suitable cognate boreal research regions that would be comparable to cases already in development in Sweden and Finland. The Canadian team chose the Saskatchewan River sub-basin, particularly the Saskatchewan River Delta region, to be the focus of the Canadian research project.
on floods and emergency response. Åsa visited Sweden in May 2011 for Mistra meetings, and provided research synthesis on a corollary document explaining emergency management practices and policies in Canada before her term ended. During year one of the Canadian flood project, Massie collected background information on three case-study communities and obtained a certificate of ethics approval. Semi-structured interviews are in progress. To date, interviews have been completed with five municipal leaders in the three communities, three scientists who work on water issues in the delta, and one provincial policy developer. Interviews have been scheduled with three additional municipal leaders and three more provincial policy developers, bringing the total to fifteen. Two chapters are in preparation for an upcoming book, Climate Change and Flood Risk Management: Adaptation and Extreme Events at the Local Level. Merle Massie is the lead author of a chapter in which emergency-management practices and policies are compared across Sweden, Finland and Canada, using the four ‘R’ framework: Risk Reduction, Readiness, Response, and Recovery. Massie and Strickert collaborated on a Canadian chapter, focusing on the importance of historical flood memory in contributing to resilience. The research focuses on flood events in the Saskatchewan River Delta in 2005 and 2011, through an analysis of newspaper articles, press releases, and semi-structured interviews in three communities in northern Saskatchewan and Manitoba. Four major themes, or insights, have emerged:

I. Historical flood memory is an important contributor to resilience;

II. Agenda-setting is important, particularly in the interplay between regional or provincial flood events and emergency response, versus the local situation;

III. There are key differences between the two provinces of Saskatchewan and Manitoba. Manitoba has had more experience with long-term droughts, and it is possible that its water management is not as adept at dealing with flood situations.

IV. Delta residents explain floods both as necessary and natural events required to keep the delta healthy, and as crisis events that require emergency-response measures. Interview responses differ, depending on the interviewee’s perceptions and if interviewees are speaking about the delta in general or a specific flood event.

Papers by Massie and Reed are in progress, in addition to the two book chapters planned for this project. Terhi Vuojala-Magga has an established line of study regarding issues of reindeer husbandry, climate change and various questions of adaptation in changing climate. Aside from her work detailed in several of the articles listed above, she has undertaken fieldwork with interviews in Kaamosukka, Karigasniemi (November–December 2011). This work will contribute to the article “Is the human being the key constructor of the fell areas? The question of power relationships of reindeer, reindeer herders and motifs in the birch-tree line of Paistunturi, Finnish Lapland”, to be authored by Terhi Vuojala-Magga, Minna Turunen, Otto Suominen and Carina Keskitalto.

Joonas Vola, Jenny Åkerman and Emmeline Laczó Ambjörnsson have contributed to a number of book chapters. The research behind these chapters involved reviewing newspaper articles (Joonsas) and undertaking interviews based on pre-defined interviewee sets and key informant questions (Vola for the Finnish part of the Torne Valley flood case study, Åkerman for the Swedish part of the Torne Valley flood case study, and Laczó Ambjörnsson for bark beetle and economic change studies). They have also all undertaken qualitative interview coding (manual or using qualitative software) in relation to set theoretical categories, and contributed to analyzing coding to support article development.

Outreach, stakeholder interaction, and potential further research

Thus far, outreach has taken place mainly through Mistra (the Mistra project website, presentation and engagement in Mistra meetings (both general project and programme meetings)) and interaction with stakeholders through data collection (in particular semi-structured interviews in case study areas in Sweden, Finland and Canada, as detailed above). Keskitalto presented the project at a programme presentation at the Canadian Embassy in Stockholm during Stockholm Polar Week (March 2012), and participated in a workshop on flood risk in the Torne River. Keskitalto’s already-mentioned work on the Arctic Human Development Report II has also contributed to project outreach.

In Canada, the Alpavirn Journal (a weekly newspaper published in the main urban centre of the Canadian research region) profiled the Canadian flood component of the Mistra project. During a recent research trip, Merle Massie was an invited guest on two local radio stations, to explain and promote their research in Karigasniemi and Kawerak. Since May 2011, Massie has also written about the Canadian Mistra flood research on her professional blog (see http://merlemassie.wordpress.com/). Cooperation is also expected with the Global Institute for Water Security as part of the University of Saskatchewan Science in Society project initiated in late 2011, to investigate the connections between communities and scientific researchers. Graham Strickert, the postdoctoral fellow in charge of this project, teamed up with Merle Massie in January 2012 on a coordinated visit to Cumberland House; a First Nation community studied in the Mistra project. Following an intensive focus-group session in Cumberland House in May 2012, Massie and Strickert committed to co-authoring a publication combining the strengths of both projects. Strickert and Massie also led a larger group of researchers back to Cumberland House in April 2012 to help facilitate a rich, multi-year project that will expand and extend the Science in Society (SIS) and Mistras studies into the future, and may include foci on extreme events, water security, water quantity and quality, and water management. Potential further research orientations also include continuation of work under the different themes as well as extended research areas, to further understand how policy on different levels can support adaptation in northern areas.
Activities and progress
The purpose of this research project is to assess the role of tourism in changing Arctic societies. This is being done by studying tourism development in the Arctic as part of an innovation system. Our aim is to compare the state of the tourism industry in three northern regions: Arctic Sweden, the Yukon (in Canada), and the Nenets region (in Russia). These regions share characteristics of northern locations but differ significantly, not least with respect to their respective regulatory frameworks.

Industries particularly within the Arctic regions face different conditions not least influenced by their peripheral characteristics. Therefore, we have taken a regional approach to our analysis. In addition, a sectoral approach is utilized, focusing in this case on tourism, in recognition of the distinct knowledge and regulatory regimes that apply to different industries.

CONTACT:
Dieter Müller, project leader, Department of Social and Economic Geography, Umeå University: dieter.muller@geography.umu.se
Linda Lundmark, deputy project leader, Department of Social and Economic Geography, Umeå University: linda.lundmark@geography.umu.se
allows for identifying industrial success stories with respect to reaching various goals. It also enables us to identify and discuss a range of system failures, including traditional market failures and failures in capabilities, networks, institutions, regulatory frameworks, governance and corporate policies (such as policies regarding competition). These aspects of system failure will also be used to highlight ongoing research findings. Activities and progress are summarized in Table 1.

### Findings

Findings thus far are summarized in the following sections. Geographically, research activities to date have been focused primarily on Arctic Sweden, which is also the main focus of the research programme. However, initial research activities were conducted during 2011 in the Yukon region and will be intensified during 2012. Research in the Yukon will be led by Dr. Suzanne de la Barre, who has recently relocated to Canada. Hence, comparative studies in the Yukon are scheduled to start during the summer of 2012. Many of the results and arguments presented below are tentative. Only a few texts have been published. The presentation of research findings does not follow the scheme presented in Table 1 at this stage, and efforts to synthesize and organize the findings are planned for later.

Several sources have been central to the research presented here. For Sweden, a longitudinal database was available covering all individuals. This database has been utilized to assess vulnerability to financial crisis and outcomes for the research project. Finally, an analysis of media debates has been added to the data.

### Table 1: Issues addressed in research activities 2011–April 2012

<table>
<thead>
<tr>
<th>Failures</th>
<th>Arctic Sweden</th>
<th>Yukon</th>
<th>Nenets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Capabilities</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Networks</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Institutions</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Regulative frameworks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governance and policies</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### RESEARCH FINDINGS

The growing demand for natural resources and rising prices for raw materials have brought about a renewed interest in mineral assets across the circumpolar north, including northern Sweden. Alongside this renewed interest, continued dependence on “boom and bust” approaches to regional economic development appears to be inevitable. It is difficult to establish a sustainable diversified economy in a region characterized by export-driven economic growth. This is particularly true in remote regions. Alongside natural-resource extraction, tourism is widely advanced as a means for regional and community economic development in peripheral regions. However, in northern Sweden, the tourism industry selling access to the wilderness must square off with stakeholders who access the same territory as Europe’s strongest mining region.

Numerous challenges impede the use of tourism as a tool for promoting economic development. These include: a lack of, or underdeveloped, tourism infrastructure and amenities; seasonality; and, a shortage of skilled human resources. Moreover, tourism itself is at risk of falling into the “staples trap.” As a result, only well-considered tourism development is likely to contribute to regional economic development goals, especially if these also aim to provide community benefits that meet socio-cultural, economic and environmental criteria related to sustainable development. This is the point of departure for the research project.

**Conceptual perspectives**

As a first step in the research, Müller (2012) discussed the conceptual foundations for Arctic tourism. He argued that Arctic tourism is mainly based on exoticism and ideas about wilderness. This implies a cognitive homogenization of Arctic regions, which calls for a research approach that compares Arctic regions rather than treating the area as one single unit. Moreover, Arctic tourism presupposes a core-periphery relationship that influences the forms and outcomes of Arctic tourism development. In this context, human dimensions are rare, since the Arctic is depicted as wilderness only. Research on tourism in the Arctic is also framed by this relationship and, thus, ideas for how tourism should develop depart from norms and ideas derived from other geographical areas. To address this, it is suggested that research should originate from the region, as well. Lundmark and Müller (2012) have initiated further the development of an analytical framework. Their work departs from an innovation-systems approach to tourism development. Thus far, research on innovation systems has, for the most part, been about industries’ innovations and business in the ‘new’ economy. This has encompassed urban space, and firms and industries in the cultural sector, predominantly with a cluster dimension attached. At the same time, this approach has excluded other localities, i.e., rural and peripheral areas in the polar region. Moreover, the Arctic adds to the complexity of the analysis of the success and failure of destinations, not least owing to the conditions of sparsely-populated peripheral areas with increasing tourism, the threat of climate change, and the presence of indigenous peoples. The framework proposed by Lundmark and Müller suggests, therefore, connecting the dots regarding an Arctic Tourism Innovation System (ATIS) through empirical investigation. A tourism-innovation system includes product, process, managerial, marketing and institutional innovations and is interlinked with the social, economic, institutional, cultural and regulatory settings that are specific.
to certain geographical entities. Thus, the spatial aspects of the tourism phenomenon and the character of the tourism industry itself are crucial in the development of a theory that addresses the specificities encompassed in the Arctic.

Markets
In addition to identifying success factors, the project framework also allows for pinpointing problems and reasons for failure. Müller (2011) provides an overview of challenges that tourism development in Arctic Sweden has faced since the early 1990s. His work shows that a varied tourism supply is available and promoted in all municipalities. Still, although innovation regarding products – namely winter products like the Ice Hotel, car driving on ice and dog-sledding tours – has taken place, tourism in Arctic Sweden remains marginal in a national context. Successful tourism development is concentrated to a limited number of places, all accessible by air transport. Moreover, land-use competition from other industries – particularly from mining – is an increasing threat to tourism development. Thus, a question to be asked is whether tourism development should really be promoted everywhere. It is argued that accessibility and a certain level of economic development seem to be important prerequisites for successful development of a tourism industry.

Market problems are also addressed by Pashkevich (2011). Destinations in the Arctic region have been trying to position themselves in the areas of niche and small-scale tourism, often claiming that this type of tourism is more sustainable, and thereby also could be labelled and promoted as eco-tourism. Tourism practices are further analyzed in a study of the tourism industry in Arctic Sweden with respect to how small economic development priorities shift to mining. In this study, de la Barre considers tourism in relation to its potential contribution to sector based economic diversification (e.g., not related to natural resource extraction), and incorporates a discussion on the significance of tourism in relation to regional and community renewal, especially as these objectives are expressed by the municipalities that make up the Heart of Lapland. Findings highlight tourism development activities and processes that are challenged during a mining boom, as well as the potential contribution tourism development can make in combination with the economic benefits expected from mining.

How entrepreneurs deal with the situation is discussed in de la Barre (2012b). The point of departure in this article is the mining – tourism nexus and how exactly does this help to sustain communities? Tourism stakeholders in rural areas, entrepreneurs and industry organizations have led to some growth in tourism in many rural areas, but how does it happen? Entrepreneurial actions by members of the community, Brouder looks beyond the pecuniary benefits of tourism (which

The mining – tourism nexus
This topic is further elaborated by de la Barre (2012a). Using northern Sweden’s Heart of Lapland as a case study, this qualitative research is concerned with identifying the roles that tourism and public-sector organizations have in shaping the image of Kiruna as a unique destination, especially among international visitors.

Labour market issues
The topic of tourism impacts on the labour market is further developed in a book chapter (Müller 2012). Here it is shown that tourism development has indeed meant a lot to local labour markets in many municipalities in Sweden, Kiruna is not an exception. However, the development of tourism is related to development in staple industries (mining and forestry); an increase in labour demand within mining causes a decline in tourism, and vice versa. Tourism seems only to be of interest when employment options in other industries are scarce. Tourism is therefore discussed as a “hibernating strategy.” However, the current focus on developing mines can lead to certain geographical entities. Thus, the spatial aspects of the tourism phenomenon and the character of the tourism industry itself are crucial in the development of a theory that addresses the specificities encompassed in the Arctic.
Brouder’s research results indicate evidence of a number of positive externalities that extend into the local social realm.

Preservation and tourism development

Pashkevich (2012) addresses the nexus of preservation and development with regard to cultural heritage. Economic development based on the utilisation of iron ore deposits in one of the world’s most technologically-developed mines in Kiruna continues to be crucial not only for local and regional development of the area, but also for the whole country. Mining activities are part of local heritage, and have been utilised as a tourist attraction for Kiruna’s visitors. Current development of Kiruna – including the relocation of the city centre – has also been used by the local Destination Marketing Organisation as an opportunity to develop a series of innovative tourism products. However, there are still some unresolved issues. One of them is the heritage of the indigenous people of this area; the group of the northernmost Sami people. Ways of preserving and making Sami culture accessible to a wider audience is one of the questions discussed in this paper.

Müller (2012) takes a look at the preservation of natural heritage. National parks in peripheral areas are often promoted as tools for regional development, and a way of restructuring resource-based economies into tourism. Though not always embraced by local communities, tourism businesses are generally expected to favour new park establishments. However, the coalition between environmentalists and tourism entrepreneurs has recently been challenged. Müller’s book chapter analyzes discourses regarding the establishment of national parks in Arctic areas, using the proposed National Park Vindelfjällen in northern Sweden as a case study. Using discourse analysis of media debates, public documents and interviews, Müller demonstrates that struggles over national parks are not only about tourism development, but wider concerns regarding the management of Arctic environments. In this context, it is not useful to simply classify stakeholders as local, national and international. Interests differ within each of these groups, mirroring a general struggle over control of northern regions. Hence, tourism development is used as an arena for negotiating issues of governance and power.

A comparative approach to above issue is presented by Pashkevich (2012). In many parts of the world, developing nature-based tourism is increasingly looked upon as a necessity in order to increase regional development opportunities as well as to motivate improved nature protection. Pashkevich’s contribution is concerned with an evaluation of the current stage of tourism development and management of protected areas in North-West Russia and Sweden, drawing also on examples from other Arctic territories. Her point of departure is based on general principles of the development of natural areas proclaimed by the Ministry of Natural Resources and the Swedish Environmental Protection Agency, respectively. Achieving the ambitions expressed by these institutions regarding the recreational and educational functions of protected areas is difficult in the absence of investments in tourism infrastructure. At the same time, environmentalists have been expressing concerns regarding tourism development in protected areas, on the grounds that it is not ecologically sustainable. In this study, Pashkevich concludes that, until now, systems established to protect nature have limited the recreational potential of protected areas, but in different ways and with different implications. There is evidence that mistrust and lack of collaboration between governmental agencies and stakeholders, both in Sweden and in Russia, limit opportunities and hinder positive development of the tourism industry. The possibilities for wider involvement of the local population in the decision-making and actual development of tourism in these areas are scarce.

Transportation

An evaluation of the tourism industry in maritime cities in Arctic Russia suggests that a significant qualitative and quantitative increase in tourism activities organised by domestic tourism firms is virtually impossible (Pashkevich 2011). There are several factors contributing to this. The previously-established Soviet system of government support
for investments into the port facilities and the sea fleet have not been effectively regulated throughout the creation of new structures. Investments required for reconstruction could be contributed by the federal government, but increased passenger transportation has not been a priority. Having in mind, increased environmental pressures in this highly sensitive area it is vital to establish a well-functioning monitoring and rescue system in the situation of ever increasing risks which come not only from the increased transport along the Northern Sea Route, but also from the exploitation of offshore oil and gas reserves in the Arctic seas.

Indigenous dimensions

Engström and Boluk have explored the conflict between a Swedish Sami community and a local tourism company eager to exploit traditional Sami land. The aim of their research is to illustrate the Sami perspective and how they negotiated during a conflict concerning the planning process of a large scale tourism development. Key findings of this study indicate that there is a strong hierarchal order among different land-use interests. Furthermore, traditional claims to the land are not always considered as superior to economically-driven initiatives. Instead, objectives identified by the state government are important factors in determining outcomes in such types of conflict. Similarly Engström and Boluk (2012) has found that relationships between different stakeholders often are asymmetrical. In the Swedish mountain range, large-scale tourism companies (e.g. skiing resorts) and small-scale Sami tourism firms are often in a position of power. This could potentially create a degree of collaboration between firms of different scale, there is a skewed power relation between them.

Governance and planning

Pashkevich (2012) aims to identify and analyse issues influencing the process of general tourism development in the Russian Arctic. This is done through the re-evaluation of the regional-tourism planning processes and existing touristic products of the seven administrative units of the territory of the Russian Arctic: West Murmansk; East Murmansk; Arkhangelsk oblast (Nenets Autonomous okrug); Jamal-Nenets Autonomous okrug; Krasnoyarsk Krai (Taymyr Dolgano-Nenets municipal rayon); Sakha Republic; and Chukotka Autonomous okrug. Although these units possess unique natural and cultural characteristics suitable for developing unique tourism products, this potential is either not or only partly utilised. It is possible to identify clear losers as well as the leaders. The situation is often dependent on the level of engagement of public organisations, as well as private companies within the natural-resource-extraction sector. The engagement of such stakeholders is an important condition for achieving desired tourism development, as well as for developing indigenous tourism products.

In another contribution, Pashkevich focuses on the development of the tourism activities in the territory of the Russia’s Arctic regions. The number of specialised conferences, forums, meetings and other gatherings organised by different state and federal tourism agencies and private actors has increased dramatically. However, most tourism development in these regions proceeds unplanned, and should be considered in a long-term perspective. Although the different scales of firms influence the power relations between them? The purpose of this ongoing study is to investigate the relationship between large-scale tourism companies and small-scale Sami tourism firms. The study is being conducted through semi-structured interviews with tourism entrepreneurs inibre, where both a large-scale touristic company and smaller Sami firms are located. Preliminary results indicate that even if there is a degree of collaboration between firms of different scale, there is a skewed power relation between them.

Opportunities

The results of research performed by de la Barr and Brodier (2012) highlight opportunities for polar tourism. Following culinary and food-tourism trends developing around the world, the unique attributes of the circumpolar cupboard are increasingly being recognised and used to enhance the appeal of northern destinations. As part of this positioning, food tourism is embracing the rich storytelling traditions of circumpolar peoples; both indigenous people who have always lived in close contact with the natural environment, and more recent newcomers who have made “the North” their home. With the exception of its indigenous peoples’ perspective, the Arctic has generally not been seen as a region replete with food supplies plucked from lavish, bountiful landscapes. However, slow and local food movements are having a significant impact on the way Arctic foods are presented, consumed, and perceived, especially for the purposes of tourism. In this paper, the authors examine emerging food-tourism trends and issues in the Circumpolar North. They evaluate the growing importance of food, and its relationship to land-based traditions and activities in the tourism experiences offered in northern Canada and Scandinavia. Using examples highlighting the use of food drawn from tourism experiences offered across the Circumpolar North, they examine product-development strategies and the innovative nature of food and culinary tourism in northern regions.

While considering the significant opportunities that food dimensions offer circumpolar tourism, the unique challenges posed by this complex tourism-development environment are also explored. These include challenges encountered by peripheral tourism in general, as well as those that relate specifically to food-tourism activities. Climate change is also considered, as an on-going process that will continue to impact both tourism and food-security. Results indicate that cuisine is an important complement to the Arctic tourism experience, and the richness of the circumpolar cupboard is an under-utilised asset of tourism in the Circumpolar North.

Preliminary summary

Preliminary conclusions included that tourism development should be seen in the context of other industries and regional development. The role of tourism as tool for diversifying local economies and sustaining local communities is not primarily threatened by climate change. Instead, the dominance and power of resource-extracting industries overshadows the development of alternative livelihoods. This conclusion is applicable to northern Sweden and the Nenets region, and we expect to see similar results in the other regions we have explored. The premise is that tourism is not happening, but it seems to be perceived as a hibernation strategy between mining booms rather than an opportunity to diversify local economies and create attractive places for both tourists and residents.

PAGE 58 ARCTIC FUTURES 2011 ARCTIC FUTURES 2011 PAGE 59

Opportunities

The results of research performed by de la Barr and Brodier (2012) highlight opportunities for polar tourism. Following culinary and food-tourism trends developing around the world, the unique attributes of the circumpolar cupboard are increasingly being recognised and used to enhance the appeal of northern destinations. As part of this positioning, food tourism is embracing the rich storytelling traditions of circumpolar peoples; both indigenous people who have always lived in close contact with the natural environment, and more recent newcomers who have made “the North” their home. With the exception of its indigenous peoples’ perspective, the Arctic has generally not been seen as a region replete with food supplies plucked from lavish, bountiful landscapes. However, slow and local food movements are having a significant impact on the way Arctic foods are presented, consumed, and perceived, especially for the purposes of tourism. In this paper, the authors examine emerging food-tourism trends and issues in the Circumpolar North. They evaluate the growing importance of food, and its relationship to land-based traditions and activities in the tourism experiences offered in northern Canada and Scandinavia. Using examples highlighting the use of food drawn from tourism experiences offered across the Circumpolar North, they examine product-development strategies and the innovative nature of food and culinary tourism in northern regions.

While considering the significant opportunities that food dimensions offer circumpolar tourism, the unique challenges posed by this complex tourism-development environment are also explored. These include challenges encountered by peripheral tourism in general, as well as those that relate specifically to food-tourism activities. Climate change is also considered, as an on-going process that will continue to impact both tourism and food-security. Results indicate that cuisine is an important complement to the Arctic tourism experience, and the richness of the circumpolar cupboard is an under-utilised asset of tourism in the Circumpolar North.
PROSPECTS FOR FUTURE RESEARCH

Arctic discourses
Living conditions and economic development in Arctic communities are influenced by outside stakeholders, including tourists (who have certain images of the Arctic) and governments that expect and see both opportunities and risks related to Arctic development. Another project in the programme assesses futures passed. However, major accounts of current discourses regarding Arctic development as well as media information and public images of Arctic spaces and places are absent. Our research has so far indicated that tourist images of the Arctic and Arctic peoples do not correspond to Arctic realities. This discrepancy certainly affects development in the Arctic and calls for further research.

Arctic futures in Arctic communities
So far, this research programme has mainly taken an external perspective on Arctic futures, fully in line with our notion that the Arctic is defined primarily by outside stakeholders, while local voices are not heard in discourses on Arctic development. One research prospect is thus to document accounts of Arctic futures as defined by local communities within the Arctic. What are the possibilities and visions that are developed within the area, and what problems and challenges are perceived to achieving these futures? The role of tourism should also be highlighted in responses to these questions.

Economic diversification processes and community development
Our research has shown that economic diversification is a core issue for communities in northern peripheries. This is not only the case regarding local labour markets, but also regarding the need to develop attractive communities that survive bust periods in the resource-extracting industries. Hence, there is a need to take a closer look at the link between natural-resource companies, their corporate social policies, and sustainable
community development. Obviously, preconditions vary amongst our case study areas. A lack of civic non-governmental institutions and organizations in the European states creates challenges for local relations to strong companies and southern governments, particularly considering the impacts of globalization and the changing role of government. In this context, it is important to ask to what extent small communities can protect their interests in negotiations with powerful stakeholders mainly interested in the natural resources available in the area.

Assessing the potential for non-indigenous cultural tourism clusters in Arctic resource peripheries

Tourism development in Arctic regions has traditionally relied on two tourism product niches: nature-based tourism and indigenous tourism. Cultural tourism that aims to develop tourism experiences linked to culture defined in a broader sense includes indigenous tourism. Cultural tourism that aims to develop Northern Swedish communities.

Spin-off activities

Members of the research team are involved in two applications submitted to the FORMAS-programme on Sami research (2012-2015). Dieter Muller is the main applicant for a research project titled "From Reindeer Herder to Tourism Entrepreneur: The Transformation of Sápmi as Geographical Process and Lived Experience" (4 899 839 SEK). Pashkevich and Heldt-Cassel joined Carina Kesktalo, project leader for another Arctic Futures project, in an application titled "Processes of representation in indigenous tourism development: Cases from reindeer husbandry areas in northern Sweden and northwest Russia" (5 249 838 SEK). Suzanne de la Barre has submitted an application to the Northern Research Institute (based at Yukon College, Yukon, Canada) for fund to offset costs of Yukon-based field research that will form the comparative component of the "Minding the Boom" research project. Moreover, Lundmark and Muller, respectively, intend to submit applications to the Swedish Environmental Protection Agency's call for research proposals on "A Magnificent Mountain Landscape for Future Generations."

Through these activities we hope to provide additional financial and human resources to the Mistra research group, furthering capacity building for performing research on tourism and regional development in northern areas. The group is planning to develop a Master in Northern Tourism, recently endorsed by UArctic. The consortium of participating institutions is led by Finnmark University College and also involves Umeå University, Lapland University, the University of Oulu, the University of Iceland, Lakehead University and the University of Northern British Columbia.

Outreach activities

Scientific outreach activities are mainly channelled through the researchers' individual networks. An important forum for capacity building for performing research on tourism and regional development in northern areas. The group is planning to develop a Master in Northern Tourism, recently endorsed by UArctic. The consortium of participating institutions is led by Finnmark University College and also involves Umeå University, Lapland University, the University of Oulu, the University of Iceland, Lakehead University and the University of Northern British Columbia.

The project is organized as a cooperative effort involving Umeå University (UMU) and Dalarna University (DU). The project leader is Professor Dieter K. Müller (UMU). Associate Professor Linda Lundmark (UMU), Assistant Professor Susanna Heldt-Cassel (DU), and Associate Professor Albina Pashkevich (DU) are core members of the research team.

PhD student Christina Engstrom's research (DU) is partly financed by the programme. Masters student Fredric Hopstadius (UMU) has been employed part-time, to assist researchers in the project, to support data collection in the Nenets region, Nadezhda Iglovskaja (PhD in geography, Pomorsky State University, Arkhangelsk) has been employed part-time.

In August 2012, following her Post doc at Umeå University, de la Barre will be employed as an Assistant Professor at Vancouver Island University (VIU), Canada, continuing with the project part-time as research associate. VIU will join the project consortium. Patrick Brouder is tentatively expected to join the research team as a post doc at Umeå University.

Common activities in the project include joint meetings twice a year. A first meeting was organized in Stockholm in April 2011. A second meeting was held during the Nordic Symposium of Tourism and Hospitality Research, in Rovaniemi in September 2011. For 2012, a first meeting was held during the Third International Polar Tourism Research (IPTRN) Network Conference in Nain, Canada (April 2012). A second meeting will be held in Umeå (May 2012), where the project will also be visited by Professor Margaret Johnstone from Lakehead University, Canada. Otherwise, the work is mainly organized locally in Umeå and Borlänge, respectively.

Organization

The project is organized as a cooperative effort involving Umeå University (UMU) and Dalarna University (DU). The project leader is Professor Dieter K. Müller (UMU). Associate Professor Linda Lundmark (UMU), Assistant Professor Susanna Heldt-Cassel (DU), and Assistant Professor Albina Pashkevich (DU) and Dr. Suzanne de la Barre (DU) are core members of the research team.
COMMUNICATION

Arctic Futures: Voices, Resources and Governance


Assessing Arctic Futures: Voices, Resources and Governance Publications


Arctic Futures: Interactive development and application of a transdisciplinary framework for sustainable governance options of Arctic natural resources

Publications


Presentations


Ismailov, S. (13 March 2012) “Arctic Games” presented at a brown bag seminar, New Economic School, Moscow, Russia.


PAGE 65

Arctic Futures 2011

Arctic Futures 2011
climate change (in review with Palgrave Macmillan, New York).

**Presentations**

Avango, D., presented by S. Sörlin (22 June 2011) “History in Action: Historical remains in polar conflicts” at the International Congress of Arctic Social Science, Tromsø, Norway.

Avango, D. (26 April 2012) “Constructing industrial futures for the Arctic” in session 1.4.3 at From Knowledge to Action: International Polar Year Conference, Montreal, Canada.

Avango, D., and Lajus, J. (26-27 April 2012) Conveners of session 1.4.3 “The history and archaeology of the Arctic and Antarctic: science, policies, resources and cultural heritage” at From Knowledge to Action: International Polar Year Conference, Montreal, Canada.


Lajus, J., and Sörlin, S. (24 April 2012) “Arctic marine resources in Russia and the states, 1930s-1950s” keynote presentation in session 1.4.3 at From Knowledge to Action: International Polar Year Conference, Montreal, Canada.


Upcoming presentations


Lajus, J., and Sörlin, S. (17 February 2012) “Cold War/Blue Planet: the rise of the environmental sciences in an age of geopolitical tensions, University of Manchester, UK.


**Publications**


Sörlin, S. (27 January 2011) Keynote address “The science of ice and snow during the Cold War” presented at the conference Exploring Ice and Snow in the Cold War, Rachel Carson Center, Munich, Germany.


Sörlin, S. (11 August 2011) “Fins det en svensk politik för Arktis?” [Is there a Swedish policy for the Arctic?] presented in a special session on Nordic nations and the Arctic at the 27th Conference of Nordic Historians, Nord-Trøndelag, Norway.

Wormbs N. (5 November 2011) session chair for the panel “All at sea? Oceanography and geopolitics in the twentieth century” at the History of Science Society Annual Meeting, Cleveland, USA.

**Upcoming presentations**


**Presentations**


**Presentations**


Mårtensson, N. and Klimenko, E. (2012) “Russia’s Arctic Strategy in the
Works in review


Presentations


de la Barre, S. (15 March 2012) "Tourist ‘Tourists to Tourism!':... and then along came the mine..." presentation to Department of Geography and Economic History, Umeå University, Sweden.

de la Barre, S. (17 April 2012) "Identifying Factors that Sustain Interest in Tourism Development during a Mining Boom: The Case of Narvik (Sweden)", paper presented at the 3rd Conference of the International Polar Tourism Research Network (IPTRN) From Talk to Action: How Tourism is Changing the Polar Regions, Nain, Nunatsiavut, Canada.

de la Barre, S. (23 April 2012) "Riding the Boom: Entrepreneurs and their role in sustaining tourism development in Arctic regions during intense mining investment periods" poster presented at PPy, Montreal, Canada.


Pashkevich, A. (12 April 2011) "For few or for many? Examples from the Russian Arctic: tourism heritage use as a teaching material at the advanced level in high education" presented at the round table discussion Improving the System of Training Managers for Tourism and Hospitality Sector. Government of Russia, Regional Tourism Forum in the Arctic, UNCTAD, Ministry of Youth Affairs, Sports and Tourism of the Arkhangelsk region, Arkhangelsk, Russia.

Pashkevich, A. (27 March 2012) "Arctic tourism – travel into a remote, peripheral or marginal region?" paper presented at the 3rd Conference of the International Polar Tourism Research Network (IPTRN) From Talk to action: How tourism is changing the Polar Regions, Nain, Nunatsiavut, Canada.


Måler, D.K. (18 April 2012) " Arctic tourism – travel into a remote, peripheral or marginal region?" paper presented at the 3rd Conference of the International Polar Tourism Research Network (IPTRN) From Talk to action: How tourism is changing the Polar Regions, Nain, Nunatsiavut, Canada.


Måler, D.K. (18 April 2012) "Arctic tourism – travel into a remote, peripheral or marginal region?" paper presented at the 3rd Conference of the International Polar Tourism Research Network (IPTRN) From Talk to action: How tourism is changing the Polar Regions, Nain, Nunatsiavut, Canada.

Pashkevich, A. (12 April 2011) "Tourism! Tourism! Tourism!... and then along came the mine..." presentation to Department of Geography and Economic History, Umeå University, Sweden.


Public lectures and speeches (non-academic audience)
Måler, D.K. (6 December 2011) "For few or for many? Examples from the Russian Arctic: tourism heritage use as a teaching material at the advanced level in high education" presentation at the round table discussion Improving the System of Training Managers for Tourism and Hospitality Sector. Government of Russia, Regional Tourism Forum in the Arctic, UNCTAD, Ministry of Youth Affairs, Sports and Tourism of the Arkhangelsk region, Arkhangelsk, Russia.

Pashkevich, A. (26-27 May 2011) "Arctic heritage use as a teaching material at the advanced level in high education" presented at the round table discussion Improving the System of Training Managers for Tourism and Hospitality Sector. Government of Russia, Regional Tourism Forum in the Arctic, UNCTAD, Ministry of Youth Affairs, Sports and Tourism of the Arkhangelsk region, Arkhangelsk, Russia.

Pashkevich, A. (12 April 2011) "Tourism! Tourism! Tourism!... and then along came the mine..." presentation to Department of Geography and Economic History, Umeå University, Sweden.

Pajala including comments by Suzanne de la Barre.

Lessons from Nenets Autonomous okrug open lecture for the touristic/human geography students of Northern (Arctic) Federal university Arkhangelsk (Northern-west Russia) as a part of the planned field trip to Nenets Autonomous okrug.

The project in media
Northlandger Paraja ny tramatt (Borgmästaren 195 5/11, p. 18-22). A report on a mining project that also featured parts of the research team on a field trip to Pajala including comments by Suzanne de la Barre.

Meeting with the representatives from the touristic business of Middlet part of Sweden (Our project's poster was presented at the meeting 16th February 2012)
http://www.udreds.net/sv/About Dalarna University/What is happening/Novo-Tema-Tourism MestReprsentatives-from-the-Tourist Industry/
### 1. Arctic Games: Interactive Interactive development and application of a transdisciplinary framework for sustainable governance options of Arctic natural resources.

**Organization:** Enveco Miljöekonomi AB  
**Responsible:** Tore Söderqvist

#### INCOME

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>1 975 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>1 979 616</td>
</tr>
</tbody>
</table>

#### EXPENSES

<table>
<thead>
<tr>
<th>Personnel, per partner:</th>
<th>679 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enveco Miljöekonomi AB</td>
<td>679 000</td>
</tr>
<tr>
<td>CEFIR, Moscow</td>
<td>150 000</td>
</tr>
<tr>
<td>KTH</td>
<td>279 000</td>
</tr>
<tr>
<td>NORUT, Tromsø</td>
<td>43 694</td>
</tr>
<tr>
<td>Stockholm University</td>
<td>149 033</td>
</tr>
<tr>
<td>University of Nordland, Bodø</td>
<td>55 541</td>
</tr>
<tr>
<td><strong>Total personnel costs</strong></td>
<td>1 356 268</td>
</tr>
<tr>
<td>Travel</td>
<td>63 379</td>
</tr>
<tr>
<td>Supplies, data collection</td>
<td>204</td>
</tr>
<tr>
<td>Other operational expenses</td>
<td></td>
</tr>
<tr>
<td><strong>DIRECT EXPENSES</strong></td>
<td>1 490 577</td>
</tr>
<tr>
<td>Overhead including offices**</td>
<td>236 191</td>
</tr>
<tr>
<td>Costs including overhead</td>
<td>730 577</td>
</tr>
<tr>
<td>Other contributions***</td>
<td>760 000</td>
</tr>
<tr>
<td>Depreciation***</td>
<td>-</td>
</tr>
<tr>
<td>Purchased services***</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>1 561 365</td>
</tr>
</tbody>
</table>

#### BALANCE

1 061 365

* Remaining contributions of 550 000 SEK for 2011 requisitioned in 2012

** Overhead: Maximum allowed is 35% of personnel costs

### 2. Assessing Arctic Futures: Voices, Resources and Governance

**Organization:** KTH Royal Institute of Technology  
**Responsible:** Sverker Sörlin

#### INCOME

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>2 323 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td>7 088</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 330 588</td>
</tr>
</tbody>
</table>

#### EXPENSES

| Personnel                   | 408 930  |
| Travel                     | 48 931   |
| Supplies                   | 12 739   |
| Other operational expenses | 23 785   |
| **DIRECT EXPENSES**        | 494 386  |
| Overhead including offices** | 127 045 |
| Costs including overhead   | 845 070  |
| Depreciation***            | -        |
| Purchased services***      | -        |
| **TOTAL EXPENSES**         | 1 599 465|

#### BALANCE

104 159

* Per source

** Overhead: Maximum allowed is 35% of personnel costs

*** No overhead

### 3. Arctic Futures: Managing Competition and Promoting Cooperation

**Organization:** Swedish International Peace Research Institute (SIPRI)  
**Responsible:** Neil Melvin

#### INCOME

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>2 009 455</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 009 455</td>
</tr>
</tbody>
</table>

#### EXPENSES

| Personnel                   | 537 551  |
| Travel                     | 58 984   |
| Supplies                   | 12 739   |
| Other operational expenses | 227 891  |
| **DIRECT EXPENSES**        | 824 426  |
| Overhead including offices** | 123 644 |
| Costs including overhead   | 948 090  |
| Other contributions***     | 948 090  |
| Depreciation***            | -        |
| Purchased services***      | -        |
| **TOTAL EXPENSES**         | 1 061 365|

#### BALANCE

1 061 365

* Per source

** Overhead: Maximum allowed is 35% of personnel costs

*** No overhead

---

**ANNUAL REPORT PROGRAMME LEVEL**

**Organization:** Swedish Polar Research Secretariat  
**Responsible:** Sofia Rickberg

**INCOME**

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>632 800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>632 800</td>
</tr>
</tbody>
</table>

**EXPENSES**

| Personnel | 515 904  |
| Travel    | 137 218  |
| Supplies  | 4 472    |
| **TOTAL EXPENSE**        | 718 025 |

**OVERHEAD INCLUDING OFFICES** | 127 045 |

**COSTS INCLUDING OFFICE SPACE** | 25 795 |

**OTHER INDIRECT EXPENSES** | 455 606 |

**TOTAL EXPENSES** | 1 490 577 |

**BALANCE** | 840 011

---

**ANNUAL REPORT PER PROJECT**

**INCOME**

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>2 323 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td>7 088</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 330 588</td>
</tr>
</tbody>
</table>

**EXPENSES**

| Personnel | 408 930  |
| Travel    | 48 931   |
| Supplies  | 12 739   |
| Other operational expenses | 23 785 |
| **DIRECT EXPENSES**       | 494 386  |
| Overhead including offices** | 127 045 |
| Costs including overhead  | 845 070  |
| Depreciation***           | -        |
| Purchased services***     | -        |
| **TOTAL EXPENSES**        | 1 599 465|

**BALANCE** | 104 159

---

**INCOME**

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>2 009 455</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 009 455</td>
</tr>
</tbody>
</table>

**EXPENSES**

| Personnel | 537 551  |
| Travel    | 58 984   |
| Supplies  | 12 739   |
| Other operational expenses | 227 891 |
| **DIRECT EXPENSES**       | 824 426  |
| Overhead including offices** | 123 644 |
| Costs including overhead  | 948 090  |
| Other contributions***    | 948 090  |
| Depreciation***           | -        |
| Purchased services***     | -        |
| **TOTAL EXPENSES**        | 1 061 365|

**BALANCE** | 1 061 365

---

**INCOME**

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>2 009 455</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 009 455</td>
</tr>
</tbody>
</table>

**EXPENSES**

| Personnel | 537 551  |
| Travel    | 58 984   |
| Supplies  | 12 739   |
| Other operational expenses | 227 891 |
| **DIRECT EXPENSES**       | 824 426  |
| Overhead including offices** | 123 644 |
| Costs including overhead  | 948 090  |
| Other contributions***    | 948 090  |
| Depreciation***           | -        |
| Purchased services***     | -        |
| **TOTAL EXPENSES**        | 1 061 365|

**BALANCE** | 1 061 365

---

**INCOME**

<table>
<thead>
<tr>
<th>Contributions from Mistra</th>
<th>2 009 455</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other income*</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 009 455</td>
</tr>
</tbody>
</table>

**EXPENSES**

| Personnel | 537 551  |
| Travel    | 58 984   |
| Supplies  | 12 739   |
| Other operational expenses | 227 891 |
| **DIRECT EXPENSES**       | 824 426  |
| Overhead including offices** | 123 644 |
| Costs including overhead  | 948 090  |
| Other contributions***    | 948 090  |
| Depreciation***           | -        |
| Purchased services***     | -        |
| **TOTAL EXPENSES**        | 1 061 365|

**BALANCE** | 1 061 365

---
### 4. Preparing for and Responding to Disturbance: Arctic Lessons for Sweden

**Organization:** Umeå University  
**Responsible:** Carina Keskitalo

**INCOME**

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions from Mistra</td>
<td>1 358 000</td>
</tr>
<tr>
<td>Other income*</td>
<td>717</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>1 358 717</td>
</tr>
</tbody>
</table>

**EXPENSES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>480 383</td>
</tr>
<tr>
<td>Travel</td>
<td>129 326</td>
</tr>
<tr>
<td>Supplies</td>
<td>2 512</td>
</tr>
<tr>
<td>Other operational expenses</td>
<td>14 717</td>
</tr>
<tr>
<td>Depreciation</td>
<td>-</td>
</tr>
<tr>
<td>Purchased services</td>
<td>-</td>
</tr>
<tr>
<td>Office space (direct and indirect)**</td>
<td>1 668</td>
</tr>
<tr>
<td>Other indirect expenses**</td>
<td>95 788</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>724 394</td>
</tr>
</tbody>
</table>

**BALANCE**

<table>
<thead>
<tr>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>634 323</td>
</tr>
</tbody>
</table>

* Per source  
** Overhead: Maximum allowed is 35% of personnel costs

### 5. From Resource Hinterland to Global Pleasure Periphery? Assessing the Role of Tourism for Sustainable Development in Arctic Communities

**Organization:** Umeå University  
**Responsible:** Dieter Müller

**INCOME**

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions from Mistra</td>
<td>2 500 000</td>
</tr>
<tr>
<td>Other income* (interest, UmU)</td>
<td>2 770</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>2 502 770</td>
</tr>
</tbody>
</table>

**EXPENSES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>510 524</td>
</tr>
<tr>
<td>Travel</td>
<td>107 650</td>
</tr>
<tr>
<td>Supplies</td>
<td>2 398</td>
</tr>
<tr>
<td>Other operational expenses</td>
<td>18 670</td>
</tr>
<tr>
<td>Depreciation</td>
<td>-</td>
</tr>
<tr>
<td>Purchased services</td>
<td>-</td>
</tr>
<tr>
<td>Office space (direct and indirect)**</td>
<td>1 668</td>
</tr>
<tr>
<td>Other indirect expenses**</td>
<td>178 683</td>
</tr>
<tr>
<td><strong>TOTAL EXPENSES</strong></td>
<td>817 925</td>
</tr>
</tbody>
</table>

**BALANCE**

<table>
<thead>
<tr>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 684 845</td>
</tr>
</tbody>
</table>

* Per source  
** Overhead: Maximum allowed is 35% of personnel costs
Mistra Arctic Futures in a Global Context is a research programme comprised of five projects rooted in the social sciences and humanities. The Swedish Foundation for Strategic Environmental Research (Mistra) has allocated 38 million Swedish Crowns in investment capital to this programme for the period 2011 through 2013, with the aim of creating a broad and robust knowledge base, powerful and flexible analytical tools, and an insightful stakeholder dialogue regarding the future of the Arctic.