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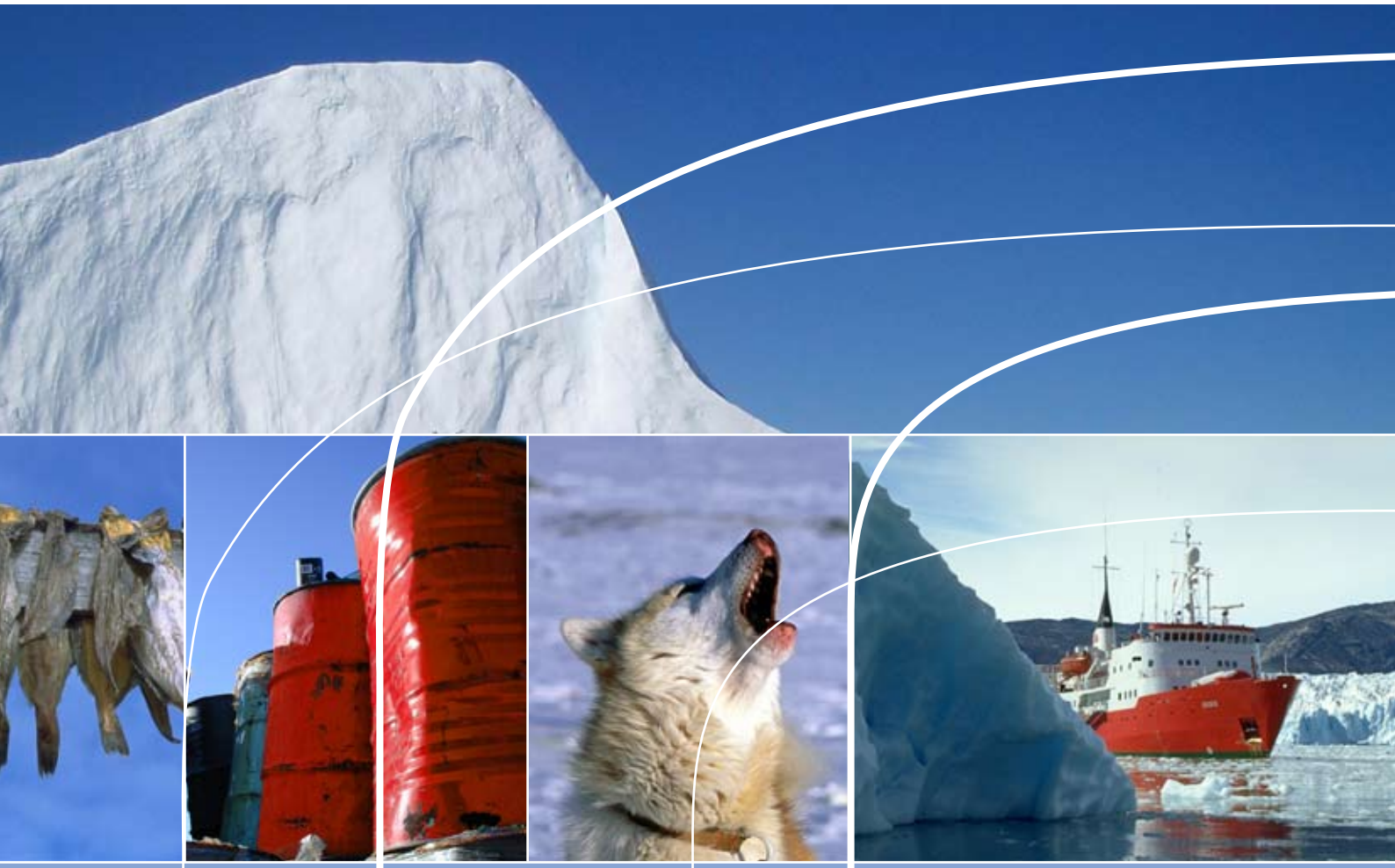
Common Concern for the Arctic

Conference arranged by the Nordic Council of Ministers
9–10 September 2008, Ilulissat, Greenland



Conference report

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Introduction

1. Introduction

Developments in the Arctic are increasingly a subject for political dialogue and policy discussion in global and regional fora and within individual states. There is an obvious need for coordinated international action to meet the many challenges facing the Arctic region due to globalization and climate change. The rest of the world is also affected by the consequences of melting ice in the Arctic.

The Nordic Council of Ministers has during the current Swedish Presidency hosted an Arctic Conference in Ilulissat, Greenland on 9–10 September 2008.

The Conference provided a forum for exchange of views on activities and policies, pursued by individual states and in particular the European Union, that are of importance for or that directly affect developments in the Arctic region. The Conference aimed at raising awareness of the new challenges and opportunities that are a result of changing environmental, economic and social conditions in the Arctic region. The Conference addressed the role of circumpolar and regional cooperation in the implementation of governmental and EU policies and the need to enhance synergies in order to improve consistency and avoid overlapping activities.

The Conference consisted of a number of focussed presentations and panel discussions regarding new opportunities and challenges within the following policy areas: 1) Terrestrial Living Resources, 2) Marine Living Resources, 3) Non-renewable Resources, 4) Local Development and Capacity Building in the Arctic and 5) Scientific Research and Traditional Knowledge.

The participants were ministers, politicians, senior representatives from EU bodies and member states of the EU, the Arctic Council, the Barents Euro-Arctic Council, the Nordic Council of Ministers and the partners of the Northern Dimension, China, Korea as well as experts on Arctic issues and representatives of indigenous peoples' organisations, relevant NGOs and the media.

The Conference took place in Ilulissat on the western coast of Greenland. The Ilulissat Icefiord is a UNESCO World Heritage Site. The location gave an opportunity for participants to reflect on the impact of climate change on this important natural heritage site in the Arctic region.

This report contains the introductory speeches and overviews as well as points raised by the participants of the panels. Furthermore, it contains the Chairman's summary as well as concluding remarks by a representative of the European Commission.

It is our hope that this report can both serve as a useful reference document and as an inspiration in the work to further develop policies of particular importance for the Arctic Region.

Halldór Ásgrímsson
Secretary General
Nordic Council of Ministers

Cristina Husmark Pehrsson
Minister for Nordic Cooperation
Swedish Presidency of the Nordic Council of Ministers 2008

Conference Conclusions

Conclusions by
Conference Chair, Ambassador **Hans Corell**,
Former Under-Secretary-General for
Legal Affairs

Summary by
Mr Janos Herman, Principal Advisor,
EU Commission, DG RELEX

Chairman's Conclusions

Ambassador Hans Corell,
Former Legal Counsel of the United Nations

Introduction

I have been asked to present Conclusions. These Conclusions are based on material presented to the Conference and the discussions during the five Panel sessions.

Needless to say, the Conclusions represent my perception of the results of the Conference. They should also be seen in the context of the objectives of the Conference: to increase awareness of how European Union policies and actions affect conditions in the Arctic and to raise awareness of the new challenges and opportunities that are a result of changing environmental, economic and social conditions in the Arctic region.

The purpose of the Conference was not to adopt common positions. Even if it would have been an advantage to present such positions, this would not have been possible among other things because of the short time at our disposal. As a matter of fact, it represented a challenge for the Chairman to present Conclusions immediately following a sequence of five Panels in one and the same day.

In order to assist those whose task it is to follow up on our work, I have attempted to highlight matters that have emerged in the discussions and such that must be addressed in the near future by individual states, regional organisations and the European Union. In other words: I have attempted to produce a document that can be used as a practical working tool.

The focus of the Conference has been on the Arctic and the European Union and how to best assist the different components of the EU to address Arctic issues more effectively and in a more coherent manner. This raises the question of the competence of the Union. It may be that some of the elements that are highlighted in these Conclusions do not fall within this competence. However, it is not for the Chairman of the Conference to attempt to make a judgement here. I believe that it is more important to list the elements identified (many, or perhaps most of which may not come as a surprise) and then leave it to the Union, its members, the Arctic states and others concerned to decide who should do what.

At first sight, the lists below may appear lengthy, raising matters of great significance as well as issues of more limited importance. It could

be argued that by reducing the lists one would bring the most important matters to the forefront. However, again, I do not believe that it is for the Chairman to set priorities. There are many actors – scientists, experts, politicians, Arctic residents, etc. – who are involved, or should be involved in addressing the matters that were discussed during the Conference. Any priorities should be set by them and ultimately by those responsible at the highest political level.

Against this background, I believe that the Conclusions should be presented as they appear in the lists. Eventually, these lists might be transformed into action plans that can be monitored by the Secretariat of the Nordic Council of Ministers and others. I intend to make a more detailed proposal in this respect to Secretary General Ásgrímsson for his consideration, partly in response to the plea that he made in his Opening Remarks: It is crucial that we not just talk and read reports – we must act!

A very important contribution to the Conference is the review of existing EU policies and actions that are related to and affect developments in the Arctic. This review appears in *The European Union and the Arctic – Policies and actions* (ANP 2008:729 Nordic Council of Ministers).

With these provisos, the following is the report on my Conclusions.

A. Opening Session

The conference was opened with Welcome Remarks by *Ms Aleqa Hammond*, Greenland's Minister for Nordic Co-operation, and Opening Remarks by State Secretary *Mr Johan Tiedemann*, representing *Ms Cristina Husmark Pehrsson*, Sweden's Minister for Nordic Co-operation.

The Chairman was invited to conduct the proceedings and delivered Opening Remarks (see below).

Thereafter, the Conference heard Opening Remarks by *Mr Halldór Ásgrímsson*, Secretary General to the Nordic Council of Ministers, and Key Note Addresses by *Dr Joe Borg*, EU Commissioner for Fisheries and Maritime Affairs, *Ambassador Laurent Stefanini*, French Presidency of the EU, and *Ms Diana Wallis*, Vice-President of the European Parliament. This material will appear in the Conference Proceedings.

B. Setting the Scene

After the Opening Session, the Conference heard presentations by *Dr David Carlson*, Director of the International Polar Year Programme Office, *Dr Rasmus Ole Rasmussen*, Senior Research Fellow, Nordic Centre for Spatial Development, NordRegio, and *Ms Adele Airoldi*, Consultant at Milieu Ltd. Their presentations will appear in the Conference Proceed-

ings. However, to assist the readers of the present report, summaries are included here.

Environmental and Climate Change in the Arctic

(Based on a presentation on environmental and climate change in the Arctic by *Dr David Carlson*, Director of the International Polar Year Programme Office)

A report prepared for the Conference, entitled "Ice in the Arctic – Sea Ice as an Indicator and Integrator", occurs just near the end of the 2008 melting season for the Arctic, at a time of rapid changes in sea ice. The report highlights factors that will determine the final 2008 sea ice extent and draws attention to the other two large ice masses of the Arctic, the Greenland ice sheet and the circum-Arctic permafrost. The point is made that although sea ice extent represents a compelling indicator, the Arctic functions as an integrated and connected system.

From the report we learn that the sea ice in 2007 reached a minimum of 4.2 million square kilometers on 21 September in 2007, an extent 40 per cent below the average for the past 28 years and so low that it surprised all observers and called into question many of the assumptions we might use to estimate 2008 conditions. It appears that the 2008 extent will be very close to the 2007 figure.

The development of ice-free Arctic transportation routes, occasions of ice-free conditions at the highly-symbolic North Pole, and the eventual complete sea ice disappearance in the summer season provide the general public with compelling and potent indicators of climate change. For long term planning, however, we should not get distracted by any single year. For annual Arctic (and hemispheric) heating and cooling, ice volume matters as much as ice extent. Therefore, we need to monitor changes in thickness (and age) as well as changes in the extent of the ice. Arctic sea ice has shown annual and spatial variability in the past and we must expect that it will do so in the future even during rapid decline; annual and seasonal predictability will remain a substantial challenge. Most important, sea ice plays a substantial role in Arctic marine ecosystems and has strong correlations with permafrost and with the Greenland ice sheet; its annual decline and seasonal disappearance portends and indicates changes in the entire Arctic system.

Real and urgent threats to ice-dependent animals such as seals and bears convey important messages to the public and to decision makers. Again, however, long-range planning requires attention to the entire Arctic marine system. Depending on season and snow cover, useful amounts of light can penetrate through several meters of sea ice. The underside of ice becomes habitat for an interesting and unique array of microorganisms. These microorganisms can grow abundant enough to give the underside of sea ice a brownish green colour; they attract other organisms

adapted to the ice environment. Animals and materials sinking from under-ice communities stimulate biological activity on the sea floor; in shallow environments, animals move back and forth from ocean bottom to overlying ice.

The sea ice sea floor connections represent substantial components of local ecosystem productivity over large coastal areas of the Arctic. In summer, under-ice and ice-edge environments provide favourable conditions for many fish, birds, seals and whales. The presence of sea ice thus has a protective effect on the Arctic sea floor and a stimulatory effect on Arctic marine ecosystems. The absence of sea ice will disrupt the ecological connections and expose large areas of undisturbed sea floor to exploitation, and particularly to bottom trawling.

On geologic (glacial – interglacial) time scales, the northern ice masses – sea ice, permafrost, and land-based ice sheets – grow or retreat together. On shorter time scales, decades, we can expect that permafrost degradation and the Greenland ice sheet ablation will also react to and replicate the disappearance of sea ice. We should anticipate similar patterns of decline: faster-than-expected changes, periods of high variability followed by periods of rapid decline, one or more irreversible tipping points.

It is suggested that we are only beginning to understand the Arctic as an integrated marine and terrestrial system. We see caribou become coastal species during summer months, often dependent on sea ice for migration to and from off-shore islands. We get a sense of Arctic vegetation greening and growing in synchrony with the seasonal cycles of sea ice, and of extreme northern plants and animals at risk along with the ice. We get a sense of atmosphere and ocean interacting with ice to encourage its winter growth and then force and arrange its summer disappearance.

The drift of the research vessel Tara during the first months of the International Polar Year provides a reminder of how these Arctic changes interact and accelerate. Starting in the same season and following virtually the same route as Fridtjof Nansen's Arctic expedition ship the Fram more than 100 years earlier, the Tara took approximately one third the time (14 months compared to 34 months) for a complete crossing at the mercy of wind, ocean and ice. The Arctic gives restless signals in all seasons; we have much less time than we think to understand and protect it.

Globalisation, Social Issues and Arctic Livelihood

(Based on a presentation on globalisation, social issues and Arctic livelihood by *Dr Rasmus Ole Rasmussen, Senior Research Fellow,* NordRegio)
Both the economic and the social life in the Arctic have been – and in the future will be – exposed to marked economic and social impact. The increased interests in the Arctic, intensified by the economic prospects opened up by the melting of ice that previously limited the accessibility, have called for further attention

Responses to environmental changes. Northern communities have always been challenged by environmental changes, but have adjusted to the changes. The situation in Greenland during the last century serves as a good illustration. A dramatic increase in sea temperature along West Greenland during the 1910s–1920s caused an increase in the cod stock becoming the dominating species and fundamental for the economy. Another shift occurred during the 1980s where a cooling causing cod to decline and resulted in a move of the economy from cod to shrimp fisheries. In both cases the changes have had profound impacts, in the first case with the establishment of a more permanent settlement structure, and in the second through an increased urbanisation of the population.

Impact of new activities. Attention is drawn toward exploitation of the mineral and energy resources in the north, as well as the opening of new transport routes. Benefits, however, rarely remain in the region, and permanent jobs are rare. And when jobs are retained, the result may be adverse effects such as social stratification and inequity in wealth distribution. Long-lasting consequences often persist through industrial waste, tailings, and environmental contaminations, so the opening up of new opportunities is a challenge to the northern communities. “The Law of the Sea” already exists as a legal framework for resolving potential conflicts in the Arctic, but the situation is not that simple, according to many northerners. The United Nations Convention on the Law of the Sea is based on the recognition of rights of states. But it is not recognising the rights of people. Adding the principle of subsidiarity, however, may provide a conceptual tool to mediate polarity of pluralism and the common good in a globalised world, granting the peoples in the Arctic a voice by treating the Arctic as a distinct region in international society.

Complex economies. Fishing and hunting has been the economic basis for most northern communities, still perceived by many as the main economic basis for communities in the North. The reality, however, is that the third sector – the service sector with wage work in administration, education, social service, etc. – is the main income source for most families, creating jobs for 80 per cent or more of the employed persons. Especially for women, who seem to be more open to the new activities, not only accepting jobs outside the traditional primary sector, but also ready to accomplish the training and educational requirements needed. Still, however, the informal economy and subsistence activities are ensuring basic supply, sharing with family and neighbours, and informal sale on local markets. It is especially important for the continuation of small scale hunting and fishing in villages, providing the basic sustenance and a small cash income.

Responses to globalisation. The changes in the overall economic structure are affecting the household structures as well as the settlement pattern. An increase in the out-migration of both males and females, looking for education and work opportunities outside the villages and smaller

towns, are contributing to an increased urbanisation in the Arctic. And the process has been accelerated by a higher rate of out-migrating females, eventually leading to a substantial increase in the number of households consisting of single men in the villages. The general pattern shows that 55 to 70 per cent of persons with tertiary education are women, while men tend to finish their educational careers with primary or secondary education, or vocational training. The question of opportunities has very much to do with availability of educational options, first of all through national programmes, but increasingly through new initiatives regarding circumpolar cooperation in education such as University of the Arctic, providing a new world of possibilities.

The new demographic challenges. The different responses to changes affect the options of staying or leaving, as young persons simply have to leave in order to pursue a future. And when they have left, many of them never come back to stay, especially women in the age group from sixteen to thirty-five, the youngest seeking education and the older seeking jobs. Many northern communities are therefore experiencing a situation where in the younger group are only six or seven females to ten males. And this gender imbalance has a marked impact, affecting both social life and the economy, with a divide between village life and large scale extractive industries, both dominated by males, while towns and cities increasingly are characterised by third sector activities, actively chosen by females through a "step-stone" process of migration, from villages to towns, to regional centres and the capital regions, and eventually out of the country.

Conclusion

It is important to react to changes in the Arctic. But it is also important to realise that the ongoing changes are multi-dimensional. Changes in climate and the environment are important factors, but in relation to the future of settlements, communities and cultures, in the end it is the people in the Arctic that are decisive.

The European Union and the Arctic – Policies and Actions

(Based on a presentation of a consultancy report "The European Union and the Arctic – Policies and actions" by *Ms Adele Airoldi*, Consultant at Milieu Ltd.)

The report to the Nordic Council of Ministers reviews the main European Union policies and actions of relevance for the Arctic. It highlights the place of research and environment as the EU policies having the most direct impact on the Arctic, and of the recently launched Integrated Maritime Policy as having a strong potential for impact. A number of other EU policies, while not targeting the Arctic as such, impact on it. The Northern Dimension is the only EU policy with a declared Arctic component, but its main emphasis has been so far on different elements.

In the last few months, there has been an unprecedented surge of interest in the Arctic within the EU. Climate change has been the main catalyst for such new awareness and interest. As climate change is moving higher and higher up the EU list of priorities, attention to the Arctic has increased in parallel in a number of EU sectoral policies.

A determining element for such attention appears to have been the realisation of the opportunities offered by a future, largely ice-free, Arctic Ocean – the exploitation of new or increased energy, mineral and fishery resources and the opening of new navigation routes.

The new geopolitical importance gained by the Arctic region because of climate change – the anticipation of new opportunities but also the emergence of new problems, including relating to international security – has been recognised by the EU institutions. The Arctic has a place on the agenda of the Commission and of the Council, and remains on the agenda of the European Parliament.

On the basis of present circumstances, which may be in some aspects in rapid evolution, the main conclusions of the report are that *the EU already impacts on the Arctic in many ways* and that *the increasing environmental, economic and political importance of the Arctic, its proximity to and historical links with Europe, warrant a conscious effort by the EU to develop as a minimum a more systematic and proactive approach*. Two main challenges need to be addressed to this end.

The first is to ensure better consistency of EU attitude and action, through a clearer and as far as possible concrete definition of ends and means, guided by the concept of sustainable development. More active interaction with Arctic countries and cooperation with the Arctic regional bodies and within broader international contexts dealing with issues of importance to the Arctic would be part of this approach.

The second, closely related, challenge is the development in the EU of a corresponding internal organisation, a central function in the European Commission supported by an efficient network reflecting the multiple Arctic-relevant aspects of EU policies and actions, to act as coordinator internally and as contact point both internally within the EU and towards the exterior.

If the idea of a full-fledged EU Arctic policy, evoked as a possibility in the EU political context, were to be pursued, it might be worth considering two questions which have emerged during the preparation of this report: whether the EU would be able to back its interest in the Arctic with enough substance, and how an EU Arctic policy could be developed in the absence of a sufficiently strong Arctic constituency able to express the interests of Arctic residents.

The Law of the Sea

(Excerpt from the Opening Remarks by the Chairman, *Ambassador Hans Corell*)

In the debate there have been suggestions that the Arctic is up for grabs in some way. There is a rush to lay hands on the resources that undoubtedly exist in this vast region.

If we focus on the Arctic Ocean alone, it is a sea of some 14 million square kilometres surrounded by continents. This represents almost one and a half times the size of the United States of America. By comparison, the size of the Russian Federation is some 17 million square kilometres. This should give us some idea of the size of the area – the ocean and the surrounding land areas – that we will be discussing.

It should also be understood that our discussion does not take place in a legal vacuum. On the contrary, there is a legal regime that applies to the Arctic Ocean, namely the United Nations Convention on the Law the Sea. This means for example that the rules on the Territorial Sea, the Exclusive Economic Zone and the Continental Shelf are applicable in the Arctic.

Of course, there can be disputes about how these rules should be applied. But this does not differ from what applies in other parts of the world. And having a dispute with a neighbouring state is perfectly legitimate; one can always differ on how to construe the provisions of a treaty. What matters is how such disputes are resolved.

There have been suggestions that disputes relating to control over areas in the Arctic could develop into armed conflict. References have been made to the planting of the Russian flag on the sea floor close to the North Pole. But that flag planting can be seen as a symbolic act at most. It certainly does not have any legal relevance. The question of the extension of the Russian Continental Shelf was brought before the Commission on the Limits of the Continental Shelf already in 2001.

There are also other issues relating to territorial claims and maritime delimitation. But, as I said, the Law of the Sea Convention should provide sufficient guidance for the states concerned and in particular for the five Arctic coastal states to settle these matters in a peaceful and dignified manner.

However, it is important to point out that the Convention on the Law of the Sea certainly does not solve all issues related in the Arctic Ocean. The Convention foresees that additional measures may have to be taken for various reasons, in particular, for the protection of the environment. New sea lanes may require rules relating to both the ships that will ply the Arctic Ocean within a not too distant future and the lanes themselves since they may have to be identified and subjected to traffic separation schemes. It may also be necessary for states to agree upon additional rules relating to fisheries and extraction of non-renewable resources in the Arctic.

In our discussions we should also bear in mind that, depending on the subject matter, different constituencies in the world community may have an interest. That this applies to the Arctic states goes without saying. But also neighbouring states and the European Union have an interest in the Arctic. As a matter of fact, I would suggest that they have an obligation to engage in matters relating to the Arctic.

We should also not forget that if the Arctic Ocean becomes navigable the rules on the freedom of the high seas will apply. And the freedom of the high seas is a matter of concern to all states.

The argument could also be made that the geography of the Arctic Ocean is such that the provisions of Articles 122 and 123 of the Law of the Sea Convention on enclosed or semi-enclosed seas are applicable. If so, the states bordering the Arctic Ocean have an express obligation to cooperate with each other in the exercise of their rights and in the performance of their duties under the Convention.

I am fully aware that there are also many questions related to the land surrounding the Arctic Ocean that must be addressed with equal precision. But because of the discussion that has taken place relating to the law of the sea I thought it was important to clarify that there is a regime that will take us a long way to resolve many of the issues that we are facing at present.

C. The Panels

In the second day, the Conference was addressed by and engaged in discussions with five Panels moderated by Ms Annika Ström Melin:

PANEL 1. TERRESTRIAL LIVING RESOURCES

This Panel had been asked to focus on the effects of climate change and consequences of melting permafrost and glaciers on the protection and sustainable use of terrestrial living resources. Specifically, the panelists were asked to address direct and indirect impacts of current agricultural and forestry policies (economic, social and environmental); maintenance of biological diversity and use of genetic resources; land use and management of natural resources, and impacts of industrial and radiological pollution.

After an introduction by Mr *Jan Vapaavuori*, Principal Advisor, Finland's Minister for Nordic Co-operation, the Conference heard presentations by four panelists: *Ms Malin Brännström*, Legal Advisor, National Union of the Swedish Sámi People, *Mr Jesper Madsen*, Director of Department, National Environmental Research Institute NERI, Denmark, *Mr Yrjö Eljas Norokorpi*, Area Manager, Natural Heritage Services of Metsähallitus, Finland, and *Mr David Stanners*, Head of Programme,

European Environment Agency (EEA). This material will appear in the Conference Proceedings.

Chairman's Conclusion

Having followed the discussion in Panel 1 my conclusion is that the following matters need to be addressed:

1.1 The implementation of existing international agreements relevant to the Arctic should be the first priority in protecting Arctic terrestrial living resources.
1.2 Proper research requires standardised, integrated programs for examining the Arctic terrestrial ecosystems. Long term monitoring, including community-based monitoring, is also needed together with scientific research to assist the peoples in the Arctic to set proper hunting and harvesting quotas. The "Sustaining Arctic Observing Networks" (SAON) process deserves strong support.
1.3 All forest land use planning should be carried out in strict accordance with participatory planning best practices.
1.4 The role of northern forests as carbon sinks and source of bioenergy must be examined and given broader recognition in the new international climate agreement that will succeed the Kyoto Protocol.
1.5 More nature-oriented forest management practices are needed that mimic the natural processes and dynamics of the forest ecosystem. The core objective should be to increase the amount of uneven-aged and mixed species forests that are kept continuously well stocked and productive and, in so doing, improve felling potential.
1.6 An extensive conservation area network should be established and maintained throughout the Arctic to foster high ecosystem biodiversity.
1.7 There is a need to examine how EU policies and rules on slaughter and meat control relate to the specific needs of reindeer husbandry.
1.8 To design effective and efficient responses and adaptation strategies, it is important to assess the impact of climate change together with other pressures, and also to clearly identify the sources of the pressures causing the problems so that action can be taken in the right place.

PANEL 2: MARINE LIVING RESOURCES

This Panel had been asked to focus on the effects of current policies on the protection and sustainable use of fish stocks and other marine living resources, such as seals and whales. Specifically, the panelists were asked to address the adequacy of regional and global conventions on fisheries management and biodiversity; effects of management regimes, trade and fisheries policies; implications of climate change for future policies on sustainable management of living marine resources; pollution from persistent organic pollutants and heavy metals in Arctic waters; and bioprospecting, i.e. commercial use of genetic biological material.

After an introduction by *Ms Diana Wallis*, Vice-President of the European Parliament, the Conference heard presentations by four panelists:

Mr Poul Degnbol, Scientific Advisor on Fisheries, EU Commission, DG MARE, Mr Aqqaluk Lynge, President, Inuit Circumpolar Council, Greenland, Ms Jacqueline McGlade, Executive Director, European Environment Agency (EEA), and Mr Jóhann Sigurjónsson, Director General, Marine Research Institute, Iceland. This material will appear in the Conference Proceedings.

Chairman's Conclusion

Having followed the discussion in Panel 2 my conclusion is that the following matters need to be addressed:

2.1 Mechanisms must be developed which can provide for regulated access to new fisheries, whether in new areas that become accessible, or because new fish stocks appear in new areas due to climate change. These mechanisms must respect the interest of Arctic residents.

2.2 When new fish stocks appear in new areas and other stocks disappear, it is important that international management authorities try to avoid disputes on management and utilisation. Therefore, strengthened methodologies and tools are needed for allocating utilisation rights when changes occur in the habitats of living marine resources.

2.3 Methods and tools also need to be developed to effectively enforce such management regimes. In particular, since there is a risk that non-regulated fisheries develop in the Arctic, instruments are urgently needed to effectively prevent i*llegal, unregulated and unreported* fishing (IUU fishing).

2.4 Specific instruments, such as those decided and implemented through regional fisheries management organisations, need to be upgraded (e.g. the Convention on Future Multilateral Co-operation in North-East Atlantic Fisheries) or elaborated to effectively regulate the activities of specific economic sectors in support of an integrated framework for maritime management. The North East Atlantic Fisheries Commission (NEAFC) could provide a setting to discuss how to implement such a framework. It could also be asked to examine the extensions of its geographic coverage and membership in order to cover Arctic fish stocks.

2.5 The EU ecosystem approach in marine management must be strengthened, extended and made operational through a legal basis for international cooperation in the Arctic Ocean as a whole.

2.6 Europe has a clear and direct role and responsibility helping to reduce the release of persistent organic pollutants (POPs) and heavy metals and thereby their impact on the Arctic.

2.7 The EU should enter into an open dialogue with Inuit so that the total import ban on seal products does not hurt the Inuit dependency on seals. It is important that EU policies on the exploitation of Arctic marine living resources reflect the interests of those depending on those resources as much as the interests of specific EU constituencies.

2.8 There is a need to develop a regional observation and monitoring system for the Arctic Ocean to support scientific research and policymaking. (Cf. 5.8)

2.9 Mechanisms must be established to ensure regular provision of and access to environmental data and information. Governments need to act consistently and refrain from being selective by taking into account some scientific advice while disregarding other such advice. If not, the result will be policy-based evidence instead of evidence-based policy. (Cf. 5.8)

PANEL 3: NON-RENEWABLE RESOURCES – NEW OPPORTUNITIES AND CONCERNS

This Panel had been asked to focus on challenges and opportunities due to effects of climate change. Specifically, the panelists were asked to address expanded exploitation of non-living resources, e.g. oil, gas and minerals; new maritime transportation routes; increased commercial shipping; need for improved regulation to enhance maritime safety and environmental protection at sea; effects of increasing tourism on the environment, local development and traditional living conditions; policies to reduce risk and prevent physical damage to infrastructure and environmental disasters on land; emergency and rescue capabilities; and best practices, improved methods and new technologies.

After an introduction by *Ms Heidi Grande Røys*, Norway's Minister for Nordic Co-operation, the Conference heard presentations by five panelists: *Ms Mette Agerup*, Assistant Director, Ministry of Oil and Energy, Norway, *Mr Claude Rouam*, Head of Unit, EU Commission, DG ENV, *Mr Martin Sommerkorn*, Senior Climate Change Advisor, World Wide Fund for Nature (WWF), *Mr Dimitrios Theologitis*, Head of Unit, EU Commission, DG TREN, and *Mr Joseph Westwood-Booth*, Head of Section, International Maritime Organization (IMO). This material will appear in the Conference Proceedings.

Chairman's Conclusion

Having followed the discussion in Panel 3 my conclusion is that the following matters need to be addressed:

3.1 Activities related to oil and gas in the Arctic Ocean must be prudent which requires high environmental standards adapted to the sensitivity of the Arctic; ecosystem based management; rigorous environmental and strategic impact assessment; effective prevention, preparedness and response to accidents, including clean-up of pollution incidents; and advanced monitoring and research.

3.2 Production and transport of oil and gas in and through ice-affected waters should be carefully regulated. The safety issues, including environmental protection, must be further analysed.

3.3 Cooperation among the Arctic states to obtain good resource management and sustainability is necessary.

3.4 Possible options should be considered for enhancing environmental governance of the Arctic. Such options might include a United Nations Convention on the Law the Sea (UNCLOS) implementing agreement for environmental issues; a regional sea agreement (along the lines of the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR)); further development of multilateral environmental agreements at the global or regional level; strengthening and broadening the role of the Arctic Council; ensuring participation by a broader range of stakeholders; and more engagement by the EU and use of the tools it has to offer (research, European Environment Agency, funding via e.g. Northern Dimension Environmental Partnership, participation in the Arctic Council, etc.), or a combination of these solutions.

3.5 Consideration should be given to the provisions in UNCLOS on enclosed or semi-enclosed seas (Articles 122 and 123) and their application to the Arctic. States bordering such a sea have an obligation to cooperate with each other in the exercise of their rights and in the performance of their duties under the Convention. In particular they shall endeavour, directly or through an appropriate regional organisation, to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment.

3.6 Tourism shipping appears to be the biggest short to medium-term challenge within the maritime transport sector in the Arctic and should be addressed with urgency. Dialog and partnership with Arctic tour operator organisations can prove useful and helpful.

3.7 It is necessary to establish a proper identification system for maritime surveillance and vessel traffic management in the Arctic.

3.8 With regard to the maritime safety in Arctic waters, governments should bring their concerns to the attention of the International Maritime Organisation (IMO) so that Member States can consider them with a view towards finding internationally agreed solutions. Unilateral regional action should be avoided.

PANEL 4: LOCAL DEVELOPMENT – CAPACITY BUILDING

In the Arctic

Panel 4 had been asked to focus on current local and regional development policies. Specifically, the panelists were asked to address migration trends in Arctic regions; the role of education and training to promote capacity building and reduce genderimbalances; the EU-Greenland Overseas Country and Territory Agreement as an example of external support for local development policies; impacts of new information technologies on local culture and traditional values; new economic activities; policies to retain income from natural resource extraction in Arctic communities; provision of education, health and social services in remote areas; policies to promote job opportunities and maintain the viability of traditional livelihoods.

After an introduction by *Mr Bertel Haarder*, Denmark's Minister for Nordic Co-operation, the Conference heard presentations by four panelists: *Ms Lida Skifte Lennert*, Head of Department, Ministry of Foreign Affairs, Greenland, *Ms Linn Harkess*, Programme Manager, EU Commission, Europeaid, *Mr Russel Shearer*, Director, Northern Science and Contaminants Research, Indian and Northern Affairs, Canada, and *Mr Pavel Sulyandziga*, First Vice-president, Russian Association of Indigenous Peoples of the North (RAIPON). This material will appear in the Conference Proceedings.

Chairman's Conclusion

Having followed the discussion in Panel 4 my conclusion is that the following matters need to be addressed:

4.1 There should be closer cooperation between the EU and the Arctic Council for the benefit of the peoples of the Arctic.

4.2 In the Greenland Overseas Country and Territory (OTC) Programme Document there is special focus on strategic areas that currently lack manpower or where there is a strong development potential: tourism, construction, raw materials, health, social welfare and education. By focusing on these areas the Greenlandic workforce should be better equipped to meet future demands.

4.3 Issues related to the Greenland ice cap, including climate change, should form the core of future Greenland-EU cooperation. Further, a broader cooperation between Greenland and the EU should be developed so that it contributes to the development of Greenland supporting sector policies within the areas of education, mineral resources, energy, tourism, research and culture.

4.4 Many Arctic communities are threatened. If we want to preserve these communities and sustain their development, it is of paramount importance to assist the indigenous peoples to adapt to the current changes; to increase access to education and quality healthcare; and to promote development and implementation of a strategy to accelerate growth of the local economy based on traditional livelihoods, tourism and production of processed goods.

4.5 Indigenous peoples should get further recognition and empowerment to be able to participate in decision-making with respect to natural, economic and social challenges.

4.6 It is of great importance to preserve and develop the use of indigenous peoples' languages in the future. This should be done through the use of modern technology and specially designed programs.

Reference is also made to the Conclusions relating to the other Panels.

PANEL 5: ARCTIC RESEARCH – SCIENCE AND TRADITIONAL KNOWLEDGE

Panel 5 had been asked to focus on policies to enhance the impact of Arctic research and access to data and dissemination of research results. Specifically, the panelists were asked to address local participation and the usefulness of scientific research to local communities; combinations with traditional knowledge; the International Polar

Year and other major research activities in the Arctic; the need for enhanced circumpolar coordination and access to polar regions for scientific research; options for new forms of joint transnational research cooperation; and policies to ensure sustained funding and of expanded long-term observation and monitoring of Arctic change.

After an introduction by *Dr David Carlson*, Director of the International Polar Year Programme Office, the Conference heard presentations by four panelists: *Dr Paul Egerton*, Director, European Polar Board, *Ms Elisabeth Lipiatou*, Head of Unit, EU Commission, DG Research, *Mr Sven-Roald Nystø*, Special Adviser, Árran Lulesami Centre and The Sami Institutions Network on High North Affairs, Norway, and *Dr Simon Stephenson*, Director of Division, National Science Foundation of the United States. This material will appear in the Conference Proceedings.

Chairman's Conclusion

Having followed the discussion in Panel 5 my conclusion is that the following matters need to be addressed:

5.1 An integrated approach to financing and prioritisation of future research themes in the Arctic is required to maximise impact and added value to society.

5.2 There is a need for commitment to connected planning and identification of common research strategies between European states as between those states and non-European Arctic states. The development of European multi-lateral partnerships with common priorities and elements of shared investment should be encouraged.

5.3 A full understanding of the economic consequences and impacts on society from climate change will rely heavily on the most accurate research assessments and scientific evidence collected in the Arctic region.

5.4 The vulnerability and resilience to climate change not only depends on cultural aspects and ecosystem diversity but also on the policies, legal rules and institutional arrangements that govern social-economic systems and social-ecological systems.

5.5 With the expected increase in the industrialisation and transport in the Arctic due to easier access to natural resources because of climate change, it is necessary to develop and implement common standards concerning indigenous peoples with respect to rights and participation in decision-making to apply to all economic activity in the High North.

5.6 Earth-system research (integrating across disciplines and multiple scales) is important since change in the Arctic can only be understood in a global context.

5.7 Funding across borders for research should be enhanced and new ways of collaboration in his field should be developed.

5.8 An assessment should be made on how data policies could be framed to enhance a free and open exchange of data necessary for environmental and climate research. (Cf. 2.8 and 2.9)

5.9 A re-assessment should be made of the timeliness, relevance and impact of research information on the development of policy.

D. Concluding Discussion

After the Panels, a Concluding Discussion was held during which the Conference was addressed by *Mr Janos Herman*, Principal Advisor, EU Commission, DG RELEX. Mr Herman's Summary will appear in the Conference Proceedings.

Among the most salient points in Mr Herman's address was his comments relating to the need for replacing outdated and mistaken perceptions about the Arctic in the EU – and about the EU in the Arctic. A key task would be to improve Arctic governance; gaps in environmental governance had been presented very convincingly during the Conference. A framework, preferably Arctic-wide, to regulate fisheries activities is necessary, and so is a regime for managing energy production and transport. Mr Herman also believed that the Conference had clarified the thinking on seals.

With respect to relevant rules, Mr Herman maintained that the United Nations Convention on the Law of the Sea is the cornerstone but that the legal regime can and should be developed further as should Arctic frameworks and organisations. In that context he suggested that one should look at the possibility of the European Commission applying for permanent observer status in the Arctic Council so that the Commission could play a bigger role and take part more actively in the work of the Council.

Mr. Herman also mentioned that a first step towards addressing all these matters would be a Communication that the Commission will present to the Member States of the European Union in November this year. This Communication will cover all issues related to Arctic cooperation, including an enhanced role for European Union in the Arctic. It will be built around three main tasks: protecting and preserving the Arctic; promoting sustainable exploitation of Arctic resources; and contributing to strengthening Arctic multilateral governance.

Thereafter *the Chairman* closed the Conference by outlining the Conclusions that appear in the present report. He also made reference to "The Arctic" and "Law of the Sea" under "Selected Material" at www.havc.se .

Chairman's General Conclusions

The Opening Remarks and the Keynote Speeches at the Conference testify to the fact that matters relating to the Arctic and the High North must be addressed with determination and in a well structured manner. Even if they may seem self-evident, I nevertheless believe that it is appropriate to close the Conference by drawing the following General Conclusions.

(a) In order to bring about necessary action, matters relating to the Arctic and the High North must be addressed at the highest political level.
(b) The issues discussed at the Conference must be addressed through appropriate institutional arrangements and the adoption of precise legal rules or action plans. Such decision-making depends on well structured information, based on solid research.
(c) Before new rules are contemplated states and international organisations should ensure that the existing legal regime is implemented and that states that have not yet acceded to or otherwise accepted elements of this regime do so.
(d) There is a clear connection between the work to protect the Arctic and the work necessary to develop an effective post 2012 climate regime which is expected to be agreed upon at the Climate Change Conference in Copenhagen in December 2009.
(e) Against this background and in view of the active engagement that the European Union has demonstrated in the field of environment and climate change, it is of utmost importance that the European Union and other major actors get deeply involved in matters relating to the Arctic; because of its impact on the climate of the earth and human living conditions far outside the High North, the Arctic is of concern to the whole world.

Ilulissat, Greenland, 10 September 2008

Hans Corell
Conference Chairman

Summary Delivered at the Concluding Session

Mr János Herman,
Principal Adviser – Deputy Political Director,
DG RELEX, European Commission

Check against delivery

Speaking Points

- This has been a very valuable event, with presentations of outstanding quality. From our narrower point of view it has also been very timely, providing opportunity to representatives of the European Commission to get a better feeling of the region and to test our ideas. This is particularly useful at the present, advanced stage of drafting the Commission's Arctic Communication. Therefore we are very grateful to the Nordic Council of Ministers and to everybody who has contributed to making this event a reality.
- Discussions have demonstrated that we already have considerable knowledge and understanding of processes in the Arctic, driven by climate change and human activities. The (huge) magnitude of the task and its urgency are beyond doubt. But I agree with those who underlined that this is not enough if we want to reduce the distance from knowledge to action. In the coming period we'll need coordinated monitoring, sharper, "user-friendly" assessments providing direct help to those who can generate the appropriate action.
- Many of you have highlighted the need for presenting the Arctic and the scale of issues at stake convincingly to the wider public. We have heard outstanding presentations about the real features of this region and the characteristics of Arctic societies. Yes, we have to dissipate persistent myths about the Arctic. Let me only add that for our cooperation it is equally important to dispel remaining misperceptions regarding the European Union.
- Several speakers have underlined that the best policy the European Union can have in the Arctic is involving the people. This could become one of the main conclusions of the conference. Moreover, the EU is particularly well suited for developing cooperation in the soft way, through multiple contacts at different levels. Dialogue with the

peoples is of particular relevance all over the Arctic region and here in Greenland, as demonstrated by many speakers.

- The Arctic is an integrated whole, comprising ecosystem and social system, both closely connected to global processes. This has been very convincingly put forward at the conference. Consequently, differences and contradictions are inevitable and we will need continued discussions to set priorities well. I felt most of you are convinced that it is possible to strike a good balance between the priority need of environmental protection and sustainability on the one hand and pressures pointing to development and exploitation of Arctic resources.
- But we should not forget that it's been the global aspects that have brought the Arctic to the forefront. The solution of Arctic-related tasks requires a unique interaction between global and local levels. The Arctic lies at the intersection of several major or global EU policies. Madame Airoldi pointed out that this could be a disadvantage since the EU has no policies specifically designed for Arctic needs; it has only wider policies that happen to be relevant also for the Arctic. Let me say only that I hope this could be turned into an advantage since those policies are very much in the limelight and (using the words of Madame Airoldi) have wide constituency.
- Allow me now to mention a few catchwords which might help us to draw the main conclusions of this event:
    - Connect knowledge (including local knowledge) to action
    - Implement existing obligations (rather than setting new ones)
    - Apply ecosystem approach, integrated (risk) management
    - Sustainability as a general rule
    - Work with others in a wide cooperative system, nobody can succeed alone
    - Involve the people in the region in continuous dialogue
- I do not intend to speak in detail about the Communication to be issued by the Commission. Commissioner Borg has already done this and my colleagues from the Commission services have presented our views in the different fields. The Communication will be built around three main tasks:
    - Protecting and preserving the Arctic
    - Promoting sustainable exploitation of Arctic resources
    - Contributing to strengthening Arctic multilateral governance
- Arctic research, monitoring and environmental protection are fields where the European Union is already a front-runner. We'll maintain our contribution and will clearly formulate our priorities and goals for the coming years. Fishery will get a lot of attention. It is clear that the EU has an interest in the sustainable exploitation of Arctic resources and the use of future navigation roots. All this will be promoted in the context of the new Integrated Maritime Policy of the European Union.

- Obviously, the EU will have an interest in contributing to the ongoing reflection on how to improve Arctic multilateral governance, together with the Arctic states and other countries. We agree that UNCLOS is a cornerstone and the main legal foundation of Arctic cooperation is in place. Nevertheless, there is space for improvement, in particular in further adapting our frameworks to Arctic needs in the changing conditions. It has been mentioned that three EU Member States and two States participants in the EEA are members of the Arctic Council. It is only natural that the EU intends to cooperate closer with the Council, in accordance with the already substantial EU contribution to Arctic activities. At present we are examining the possibility of applying for permanent observer status in the Arctic Council as a first step.
- We should reflect (together with our partners, Iceland, Norway and Russia) on how to do more for the Arctic in the Northern Dimension framework. Although the Arctic is a priority for the Northern Dimension, we have to admit that its Arctic Window has so far not fulfilled the expectations.
- The Communication will not formulate a fully-fledged EU Arctic Policy. Based on an assessment of EU interests in the Arctic, it will provide initiatives and suggestions for further, more detailed reflexion. Our discussions have been a milestone in the process and we are open to continuing this dialogue with all countries and institutions represented in this conference.

Thank You

Opening Session

Welcome Remarks by
Ms **Aleqa Hammond**, Greenland's Minister for Nordic Co-operation

Opening Remarks by
Mr **Johan Tiedemann**, State Secretary, Ministry of Health & Social Affairs

Opening Remarks by
Conference Chair, Ambassador **Hans Corell**, Former Under-Secretary-General for Legal Affairs of the United Nations

Opening Remarks by
Mr **Halldór Ásgrímsson**, Secretary General to the Nordic Council of Ministers

Key Note Address by
Dr **Joe Borg**, EU Commissioner for Fisheries and Maritime Affairs

Key Note Address by
Ambassador **Laurent Stefanini**, French Presidency of the EU

Key Note Address by
Ms **Diana Wallis**, Vice President, European Parliament

3. Opening Session

Welcome Address

Ms Aleqa Hammond,
Greenland's Minister for Nordic Co-operation

Check against delivery

Excellencies, Ministers, distinguished delegates, ladies and gentlemen
On behalf of my Government it is my privilege to welcome you all here in Greenland.

Since Greenland withdrew from EU-membership in 1985 our relations have constantly been modernised and adapted, and we are now in the second year of implementing our new partnership agreement between EU and Greenland.

I am proud of the fact that this conference is a result of one of our main foreign policy engagements - membership of the Nordic Council of Ministers. My Government had the pleasure of suggesting this event to the other Nordic countries in The Nordic Council Of Ministers last year.

To understand and overcome the challenges we are facing in the future my Government feels that it is of great importance to give high priority to the work carried out through international cooperation

We are a part of the international society and we too se the consequences of the global warming. We see them here in the Ice fjord, and we learn about changes in other parts of the world. But we would also like to be seen as part of the solution. We have in Greenland great potential resources of hydropower and fresh water, which we hope can be an important contribution to address the problems the world are facing.

During the Danish presidency of the EU in 2002 we had the first conference of what was called "The arctic window in the Northern Dimension.". After a slow start we feel that the awareness of the Arctic have grown rapidly in the world and particularly among EU member countries. We are very satisfied and grateful for this.

Together with the other Nordic countries we have taken the liberty to invite EU and its member states to see for them selves the changing in the Arctic and to raise awareness of the fact that decisions taken In Brussels also can have significant effects on the life of the peoples of the North. Living in the North makes us among other things dependant on the resources of the Sea, including marine mammals as seals and whales. Some months ago I had the opportunity to talk with the French Presidency

about the European approach to this. In Greenland we know that whale and seal is a healthy diet, and it gives us our necessary vitamins and is part of our traditional livelihood through thousands of years. In this connection I find it interesting to mention that Whale meat is healthier than cow meat when it comes to CO2 emissions. One meal of cow beef leaves as big a CO2 footprint as 8 meals with whale beef! Please, remember such facts prior to making decisions that have an influence on our livelihoods up North.

It is my hope that you during your short stay also will have the possibility to see, feel and get a taste of Greenland
Once again. Welcome to Ilulissat.

Opening Remarks

Mr Johan Tiedemann,
State Secretary,
Ministry of Health & Social Affairs, Sweden

Check against delivery

Dear Participants,
On behalf of the Swedish Presidency of the Nordic Council of Ministers, it is a great pleasure for me to open this Conference: ”Common Concern for the Arctic”, and to welcome you to this beautiful town of Ilulissat.

I hope you had a good journey here and that you are now ready to start our work.

Sweden is a member of the Nordic Council of Ministers, of the European Union, and of the Arctic Council.

The Arctic Council was established in 1996 as a forum for circumpolar cooperation among the eight Arctic states and the, then three but now six, organizations of indigenous peoples, the Permanent Participants.

The *Nordic Council of Ministers* has had Arctic issues on its agenda since 1996, and has only last week approved its third cooperation programme for the Arctic region. It is natural and logical since all the five Nordic countries have Arctic territory of their own.

The *European Union* has recently started to take a more systematic interest in the Arctic. However, the European Union has dealt with single Arctic issues now and then ever since Denmark became a member.

The Union has also over the years taken many policy decisions that have affected the Arctic, without explicitly considering Arctic aspects when the decisions were made. We welcome the Commission´s ongoing preparations of a ”communication” on EU interests in the Arctic.

The Swedish Nordic Council of Ministers Presidency sees this Conference as a very timely opportunity to forge synergies among the Arctic

Council, the NCM and the EU and to improve the way that they can work together on Arctic issues.

After this brief introduction, I will now sit down and listen to the presentations that we will hear today and the panel discussions that we will have tomorrow. I am sure they will be very interesting and informative.

The proceedings of this Conference will be lead by a Conference Chair who is perfectly suited for the task.

Let me welcome to this podium Ambassador Hans Corell, former Legal Counsel to the Secretary-General of the United Nations, who has extensive experience in public diplomacy and a strong personal interest in the Arctic.

Thank you for your attention!

Opening Remarks

Ambassador Hans Corell,
Former Under-Secretary-General for Legal Affairs of the United Nations,
Chairman of the Conference

Check against delivery

Madam Hammond, Greenland's Minister for Nordic Co-operation,
Secretary General Ásgrímsson, Secretary of State Tiedemann,
Excellencies, Ladies and gentlemen,
I have been asked to make a few brief opening remarks.

First of all, allow me to express my gratitude for asking me to be the Chairman of this Conference, hosted by the Nordic Council of Ministers and Greenland. I consider it a great honour. In addition, it feels like closing a circle since I had the privilege of chairing the XXVIII Antarctic Treaty Consultative Meeting held in Stockholm in 2005.

There are similarities between the Arctic and Antarctica. But there are also differences. One difference is that there are no indigenous peoples in Antarctica. Where we are, there are such peoples. We should not forget that we are their guests.

Before we embark upon our endeavour, I think it is important to clarify that we are here to identify important elements that must be brought to the attention of the European Union, its member states and also of the world community as a whole. I is our hope that the documentation from the conference becomes a useful tool to as many as possible.

In the debate there have been suggestions that the Arctic is up for grabs in some way. There is a rush to lay hands on the resources that undoubtedly exist in this vast region.

If we focus on the Arctic Ocean alone, it is a sea of some 14 million square kilometres surrounded by continents. This represents almost one

and a half times the size of the United States of America. By comparison, the size of the Russian Federation is some 17 million square kilometres. This should give us some idea of the size of the area – the ocean and the surrounding land areas – that we will be discussing.

It should also be understood that our discussion does not take place in a legal vacuum. On the contrary, there is a legal regime that applies to the Arctic Ocean, namely the United Nations Convention on the Law the Sea. This means for example that the rules on the territorial sea, the Exclusive Economic Zone and the Continental Shelf are applicable in the Arctic.

Of course, there can be disputes about how these rules should be applied. But this does not differ from what applies in other parts of the world. And having a dispute with a neighbouring state is perfectly legitimate; one can always differ on how to construe the provisions of a treaty. What matters is how such disputes are resolved.

There have been suggestions that disputes relating to control over areas in the Arctic could develop into armed conflict. References have been made to the planting of the Russian flag on the sea floor close to the North Pole. But that flag planting can be seen as a symbolic act at most. It certainly does not have any legal relevance. The question of the extension of the Russian Continental Shelf was brought before the Commission on the Limits of the Continental Shelf already in 2001.

There are also other issues relating to territorial claims and maritime delimitation. But, as I said, the Law of the Sea Convention should provide sufficient guidance for the states concerned and in particular for the five Arctic coastal states to settle these matters in a peaceful and dignified manner.

However, it is important to point out that the Convention on the Law of the Sea certainly does not solve all issues related in the Arctic Ocean. The Convention foresees that additional measures may have to be taken for various reasons, in particular, for the protection of the environment. New sea lanes may require rules relating to both the ships that will ply the Arctic Ocean within a not too distant future and the lanes themselves since they may have to be identified and subjected to traffic separation schemes. It may also be necessary for states to agree upon additional rules relating to fisheries and extraction of non-renewable resources in the Arctic.

In our discussions we should also bear in mind that, depending on the subject matter, different constituencies in the world community may have an interest. That this applies to the Arctic states goes without saying. But also neighbouring states and the European Union have an interest in the Arctic. As a matter of fact, I would suggest that they have an obligation to engage in matters of relating to the Arctic.

We should also not forget that if the Arctic Ocean becomes navigable the rules on the freedom of the high seas will apply. And the freedom of the high seas is a matter of concern to all states.

The argument could also be made that the geography of the Arctic Ocean is such that the provisions of Articles 122 and 123 of the Law of the Sea Convention on enclosed or semi-enclosed seas are applicable. If so, the states bordering the Arctic Ocean have an express obligation to cooperate with each other in the exercise of their rights and in the performance of their duties under the Convention.

I am fully aware that there are also many questions related to the land surrounding the Arctic Ocean that must be addressed with equal precision. But because of the discussion that has taken place relating to the law of the sea I thought it was important to clarify that there is a regime that will take us a long way to resolve many of the issues that we are facing at present.

Thank you for your attention!

Opening Remarks

Mr Halldór Ásgrímsson,
Secretary General, Nordic Council of Ministers

Dear Commissioner, Ministers, Vice president, Excellencies, Ladies and Gentlemen, Dear friends.
It is with great pleasure I welcome you to this Arctic Conference. I am particularly happy that we are gathered here in Greenland and at this amazing location Ilulissat, giving us an opportunity to see and feel the Arctic first hand.

We all know that the Arctic is facing many challenges. Climate changes, the use of natural resources and new shipping routes are perhaps the most crucial ones.

Just last Friday the U.S: National Ice Centre issued a statement concluding: “This is the first recorded occurrence of the Northwest Passage and Northern Sea Route both being open at the same time”.

The Arctic is of vital global importance due to the impact of the ice cap on the entire global climate system. The Arctic is and should be a Common Concern to us all.

During the last years, the Nordic Council of Ministers has been gradually increasing its work on Arctic issues and this will continue – also based on the outcome of this conference.

The Council is currently in the final stage of adopting a new Arctic Cooperation Programme for 2009–2011. The programme will focus on the livelihood for the people in the Arctic, address the environmental and climate issues and ensure a legacy for the International Polar Year which is coming to a close next year.

Also the European Union is of utmost importance to the Arctic since a range of its policies and activities have an impact on the Arctic Region. This conference is therefore in particular looking at the Arctic from a European perspective.

I am therefore especially pleased to see EU-Commissioner Joe Borg, Vice-President of the European Parliament Diana Wallis and Ambassador Laurent Stefanini representing the French EU Presidency here today.

As an input to the conference the Nordic Council of Ministers has commissioned Adele Airoldi to deliver a review of existing EU policies and actions related to or affecting the development in the Arctic. We hope the findings of this report can contribute to fruitful discussions among us.

When this is said we all know, neither the Nordic countries, nor the EU on their own can lift the task ahead of us regarding global warming. Therefore I am also pleased to see delegations from other parts of the world – USA, Canada, Russia, China and Chorea among others.

The Nordic Council of Ministers together with Greenland has called for this conference in order to raise international awareness of the challenges the Arctic are facing.

It is my hope that through the presentations and your active involvement during the discussions the next two days, we will be able to address the challenges and possibilities for the region and its population. Hopefully we thereby will be able to point out possible positive directions for future policies on matters affecting Arctic.

It is not a matter of choosing between environment protection and economic wealth. It is not an either or. It can and has to be combined. It's a matter of political will, research and innovation.

Research and innovation in the field of renewable energy resources and environmentally friendly technology for transport is of crucial importance. We need researchers and enterprises to join forces in the work.

The arctic people have throughout time adjusted to changes in the surrounding areas and will continue to do so. They are strong and inventive. They will prepare for new opportunities as a result of a changing Arctic - the unlocking of natural resources, new possibilities in marine transport and tourism among others.

However, we must not forget to address at the same time the challenges ahead of us.

I am confident that our discussions will demonstrate that a pro-active and more systematic approach is called for with regard to the multiple challenges facing the arctic region.

So this is serious, and we need to think and think smart and act accordingly. It is crucial that we not just talk and read reports – we must act!

It is our hope that this conference and the report circulated will assist us in our work and inspire all involved partners to pave the road towards

reaching a successful result at the Climate Conference (COP15) in Copenhagen in December next year.

I wish you all a fruitful conference and let us all get inspired to make the right decisions for the future.

Thank you

Key Note Address

Dr Joe Borg,
EU Commissioner for Fisheries and Maritime Affairs, EU Commission

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The Arctic: a matter of concern to us all

Distinguished Guests, Ladies and Gentlemen,

The Nordic Council of Ministers has consistently been a pioneer in the initiatives it has undertaken, and this event is no exception. I would, therefore, like, first of all, to express my thanks to the Nordic Council of Ministers for organising this timely conference on the Arctic and for providing me with this opportunity to outline Europe's vision for future cooperation and action in this extremely important region.

The Arctic finds itself in the throes of unprecedented change. The downward trend in ice cover, especially in the summer ice cover, is undeniable and recent measurements suggest that the ice may be retreating at an even faster rate than had previously been thought. We cannot remain impassive in the face of such alarming developments affecting the Arctic Climate, and, in consequence, the rest of our planet.

In a document on “Climate Change and International Security” adopted earlier this year, the European Commission, together with the High Representative Javier Solana, signalled the need to reflect on the increasing importance of the Arctic in EU policy. This document highlights the growing geopolitical importance of the Arctic region due to factors such as the rapid melting of the polar ice caps in the Arctic, which is opening up new waterways and international trade routes, and the increased accessibility to the enormous hydrocarbon resources in the Arctic region. This accessibility, in conjunction with territorial claims, is changing the geostrategic dynamics of the region with potential consequences for international stability and for European security, trade and resource interests.

The European Union has therefore an important contribution to make to the future of this region. Indeed, the European Union is closely linked to the Arctic through history, geography, economy and science. Together with Iceland, Norway and Russia, we have developed the Northern Dimension policy and we are pleased to see the very good cooperation that

has been established with the Nordic Council of Ministers within this framework.

The Northern Dimension – which is a key facet of the EU with its neighbours – seeks to translate a partnership between the EU and other northern non-member states into prosperity, sustainable development and well-being in Northern Europe.

We have come a long way since the 2002 Conference on "The Northern Dimension and the Arctic Window" that took place here in Ilulissat. Thus, the revised Northern Dimension adopted last year has higher aspirations: it aims at providing a common framework for dialogue and cooperation in Northern Europe. There has been too much division in this part of the world during the twentieth century. It is our hope that cooperation under the Northern Dimension will continue to promote sustainable development and will serve the benefits of all our citizens, in particular those living in the North.

The vast European Arctic and Sub-Arctic spaces are priority areas of the new Northern Dimension. This Northern Dimension is also the regional expression in the North of the complex relationship between the EU and Russia. It therefore serves as a privileged platform for us to discuss Northern issues with Russia, Norway and Iceland. There is a lot to gain from this dialogue, including specific projects benefiting the Arctic, such as the ones implemented under the Northern Dimension Environmental Partnership.

The Arctic region is also important for the European Union within the framework of the Integrated Maritime Policy, which declares, among its five goals, the aim of promoting Europe's leadership in international Maritime Affairs. This policy envisages a twin track approach – to adopt a comprehensive and cross-sectoral approach to all ocean-related issues and at the same time to focus on the individual needs of the different oceans and seas that surround the European continent. It goes without saying that meaningful cooperation will be vital to the success of the Integrated Maritime Policy in the Arctic. You have already shown great willingness to provide us with valuable input as we go about fleshing out this policy. Indeed, I am delighted to see that the Arctic Council has also been exploring an integrated approach to maritime issues. This is encouraging and demonstrates that we are thinking on the same lines.

Later this year, the European Commission will present a Communication on the Arctic region. This Communication will examine strategic issues ranging from climate change to questions relating to governance. Its aim is to assess how Europe can best contribute towards the sustainable development of the region while protecting the Arctic from environmental changes resulting from the increasing human activity that this development will entail.

Let me be more specific: as a result of the climatic changes and the recent technological developments, we are faced with a rapidly changing

situation in this region. As the ice recedes, we are presented with a first-time opportunity to use transport routes such as the Northern Sea Route. This would translate into shorter transportation routes and greater trading possibilities, and will provide a better opportunity to draw upon the wealth of untapped natural resources in the Arctic. The indigenous communities of the region, which – as the European Parliament has pointed out – possess unrivalled knowledge of their region, would be well placed to benefit economically from such activity and from potential new forms of tourism. Working together with this region's coastal communities in key-areas such as maritime spatial planning and scientific research could prove highly advantageous for all concerned.

Yet every promising opportunity hides a formidable challenge. The changes I have mentioned may also present a threat to the Arctic ecosystem and the traditional lifestyle of Arctic indigenous peoples. Increased activity in a more accessible Arctic region could create problems in terms of long-term pollution as well as other threats to this pristine environment and its inhabitants. Damage to ecosystems and the environmental wonders, such as the Ilulissat Icefjord, resulting from climate change and human activity would harm not only tourism but the economy of the region as a whole and would result in an irrecoverable loss.

Hence, in the current context of growing economic interests, the European Union will continue to emphasise the paramount need to protect and preserve the Arctic's environment, climate and biodiversity.

The European Commission's Communication on the Arctic will be proposing action on three broad fronts.

Firstly, we must aim at safeguarding the Arctic. Scientific research and monitoring have a pivotal role to play in this respect. The EU has a strong track record here. Our Research Framework Programmes have contributed strongly to the International Polar Year and the current understanding of the Arctic ecosystem. We believe that boosting cooperation among partners will serve as a catalyst for enhancing research infrastructure and creating much-needed synergies in this field.

Protecting the environment is of course crucial. The vulnerability of ice-covered areas to marine pollution from shipping activities is so apparent that it had even merited a specific Article in the United Nations Convention on the Law of the Sea. It is clear that a global response is needed if we are to create high standards of environmental protection. Within this context, the European Union will remain at the forefront of such initiatives concerning the fight against climate change and sustainable development.

Secondly, we must promote the sustainable use of resources. The Arctic harbours large reserves of hydrocarbons and other natural resources. We believe that any exploitation of the Arctic's resources should be conducted in a sustainable manner. Moreover, we should seek to apply the principles of a level playing field and reciprocal market access in the

Arctic. Furthermore, receding ice and warmer waters may create new fishing opportunities, which could potentially lead to threats to breeding and spawning grounds. As yet there is no international fisheries conservation and management regime in place that covers all of the Arctic's high seas. Here again the European Union is willing to ensure that any future fishing activities are properly regulated, so as to provide for the fair and sustainable exploitation of such a precious resource.

This brings me to the third, broader question of governance.

We are entering uncharted territory, both literally and metaphorically speaking. Hence the pressing need for proper management. This is exactly the reason why we intend to highlight the issue of Arctic cooperation and governance in our Communication.

The main building blocks are in place. They include the United Nations Convention on the Law of the Sea and also the work done by organisations such as the Arctic Council, the Nordic Council of Ministers, NEAFC and, of course, the Northern Dimension policy. Nevertheless, we should be open to develop this system further, adapting it to the new challenges and circumstances, relating to both the legal dispositions and the practical dimension. Likewise, we should revisit the international environmental treaties applicable to the Arctic. We need to determine how well they are being enforced and whether additional measures are needed.

As regards transport, the full application of sound and internationally accepted navigation rules and shipping standards should secure freedom of navigation in new Arctic routes, ensuring a level playing field and minimising any detrimental effects from shipping.

Environmental governance could be bolstered by means of enhanced regional cooperation that will build inter alia on the Northern Dimension and will take up the issues now facing us. These include sustainable development, equitable access to resources and the societal needs of indigenous communities. With the genuine commitment of all sides, I believe that we will affect real and positive change.

Ladies and gentlemen,

The Swedish presidency of the Nordic Council of Ministers in 2008 has established climate change and multilateral coordination as two of its priorities. My message to you is similar - climate change is an issue with far-reaching effects that we cannot tackle in isolation.

Dialogue involving all, the Arctic coastal States and stakeholders to shape multilateral cooperation would be a healthy start. I believe that we are conscious of the fact that we must be bold and that we need to face up to our responsibilities together, for the good of this precious region and for our planet as a whole.

Thank you.

Key Note Address

Ambassador Laurent Stefanini,
French Presidency of the European Council

Check against delivery

Mr Chairman, Mr and Mrs ministers, Commissioner, Mrs Vice-president of the European Parliament, Excellencies,
As French ambassador for the environment, I am very happy to be with you today to take part in this conference addressing the international commitment required –in particular from the European Union- to tackle the challenges faced by the arctic region. I would like first to thank the Swedish presidency of the Nordic council for its initiative as well as the Greenland authorities for their warm welcome.

As the title of the meeting suggests ("Common concern for the Arctic"), what we clearly need is a shared vision of the issues at stake and of the policies to face them, in a region which is particularly sensitive to the impact of man's influence on his environment, first of all on account of the climate change.

Our meeting brings together members of government, experts, scientists and representatives of indigenous populations. These shared visions which will be at the heart of our meeting's agenda is crucial in allowing us to better measure and analyse the environmental, economic and social changes at stake. Of course, the people of Greenland are directly experiencing these changes and is adapting to them daily. But we are all aware that what is happening in the Arctic region is a matter which concerns the whole humanity, as suggested by the IPCC report, and that the action to be taken is necessarily global.

For this reason climate change is one of the top priority of the French presidency of the EU. The French Minister, Mr Borloo is personally directly committed to this issue. He has been particularly sensitive to the invitation of the Nordic council of ministers and of Greenland, which he visited one year ago. He was not able to be among us today because of his European and parliamentary commitments but he asked me to deliver to you a message on solidarity and international cooperation which are crucial to face these challenges and their consequences.

My presence among you, as France is presiding over the council of the European Union, is also a demonstration that the EU feels directly concerned and wishes to be involved in the debate. Arctic is fully part of the Nordic dimension of the EU joint foreign and security policy and you can rely on our determination to push forward this priority. EU has an "arctic window" and even more…According to me it's an "arctic door".

Climate change is a primary concern of the EU, with the crucial milestone of post-2012 negotiations on an ambitious follow-up to the Kyoto

protocol. The French presidency with its EU partners is putting all its energy in order to reach an agreement during the Copenhagen conference in 2009. I would like to stress the excellent spirit of cooperation with our Danish and our Swedish colleagues who will be in the frontline during this important event.

To better achieve this aim, the European Union is working on the drafting of the rules for the implementation of its commitment, in term of greenhouse gases emission, i.e a 20% reduction by 2020 in its emissions compared to 1990 and a 30% reduction in the event of a post-2012 agreement. We have to show our determination and willingness to contribute to an international agreement where all countries, according to their capabilities, along the principle of "shared but differentiated responsibilities" must play their role to insure that the increase in global temperature does not exceed the irreversible threshold of 2 degrees. In this the European Union is acting to avoid irreparable and quicker than expected damages, some of which we are beginning to see in the Arctic today. In order to be effective, this commitment must be worldwide and cannot be limited to a single region, nor to neighbouring countries.

Together, we will need to act on the causes so as to limit the effects, but we also have to work for a better understanding of the phenomena which affect the region's environment. From this point of view too, the European Union is committed. The countries member of the Nordic council – i.e the three Nordic member states of the EU –Denmark, Finland and Sweden- and the two associated members of the EU –Iceland and Norway-, are on the frontline in term of scientific research, but many other member states of the EU are committed to arctic research as well. They have scaled up their efforts as part of the international polar year and by implementing active partnerships with Canada, Russia, United States, among others. The role of the arctic council is important in this regard and its decisions taken here in Ilulissat, specially regarding the implementation of the UNCLOS is important.

The DAMOCLES programme funded by the European Commission is a fine example of this collaboration. The European Environment Agency's monitoring work also meets a basic requirement to support political decision-making. French and German joint work on the Svalbard are among other examples of close cooperation. Let me name also the work of the Paul Emile Victor institute in Greenland, which has a long record of research in this area - Port-Victor, French base founded more than fifty years ago is close to us.

A lot remains still to be done in order to gain access to reliable, multidisciplinary information which can be analysed over the long term so as to better understand the effects of climate change. It is for this reason that the French Presidency of the EU is joining with the principality of Monaco in organising a ministerial conference on November 9th and 10th 2008

in Monaco on the theme "the Arctic, a unique observatory of the global environment".

This ministerial conference has a three-fold ambition:

- to raise public awareness as to the urgency of taking action to protect the Arctic from damage caused by the degradation of the global environment
- to allow scientists and personalities committed to these themes to share their observations and concerns
- to express political will to intensify research beyond the International Polar Year.

In particular, it will provide the opportunity to build upon the work done by SAON and Europolar on the networking of arctic monitoring stations.

I would like as many of you as possible to be present at this meeting so that we can continue with the discussions embarked upon in Ilulissat.

Thank you

Key Note Address

Ms Diana Wallis,
Vice President, European Parliament

Check against delivery

I must start with an apology, for the President of our Parliament, the European Parliament, Hans Gert Poettering he very much wished to attend this event.

I shall be briefing him fully on my return, and the Parliament will be debating a question to the Commission on Arctic issues in the coming weeks

I also wish to say a thank you to our hosts, this is my third visit to Ilulissat, I say that because my first visit here was to attend the precursor to this conference that was hosted by the Danish presidency of the EU in 2002. That conference rightly insisted on the Arctic window in the EU's policy Northern dimension policy, but since then Arctic issues have become far more current and topical. In between I returned with a study group of European parliamentarians helping to add to the awareness in our Parliament.

Of course awareness of the challenges and threats of climate change begin to face us all now. In my own garden before coming here yesterday I could smell the damp of autumn, three or four days of torrential rain, including in some places the rainfall of a month falling in a few hours.

Homes, that were flooded last year, were flooded again. Actually I should not be able to sense autumn in my garden yet it should still be our summer. You might not have noticed the differences in my garden, just as when we see the ice fjord tonight or the glacier on Thursday we might be forgiven for thinking as visitors, well there still seems to be a vast amount of ice here – what is the problem. In this respect it is crucial that we listen to local inhabitants and residents, especially in the Arctic, and we have to listen to science.

The physical changes in the Arctic have been screaming at the world like that well known metaphor of the canary down the mine for the last decade or more, screaming for urgent attention to face both the threats and challenges, and yes opportunities raised by climate change here in the north. I believe that the European Parliament has been and will continue to respond in three ways, firstly by seeking closer co-operation in this region through its commitment to the new EU Northern Dimension Partnership then as a co-legislator in the EU where we are taking a lead with the ambitious legislative package to combat climate change and lastly in seeking from the Commission a more holistic approach to EU Arctic policy.

In the lead up to the formulation of the new Northern Dimension Partnership the European Parliament was active in the debate. I think we secured two if not three plenary debates on the subject. Of course after the 2004 enlargement of the EU there was always the possibility that focus would shift to the Baltic, almost an internal EU sea; and to some degree it has. Yet we have still kept the Arctic in there ostensibly as an equal partner, however attention to the Baltic in itself raises eyes northward and involves tackling some of the same horizontal issues, particularly those relating to the marine environment.

In addition as you would expect as a Parliament of elected representatives, and as a trans-national Parliament at that, the European Parliament has always been keen to see the full input of elected representatives from across the Northern Dimension area in to the policy; it should not just be ministerial or inter-governmental and that has indeed been a fear with the new partnership. Our Parliament had always called for a so-called Northern Dimension Forum. A loose arrangement- we certainly did not want to create another institution in the north – rather to facilitate the meeting of representatives from the area. We hosted the first such meeting in Brussels in the spring of last year, and we will host a second next spring, I believe I can say that the first was a success and I have no doubt that it helped inform Commission and government thinking.

I also known, that as our President has made a theme of his presidency, intercultural dialogue, he would wish me to underline our commitment to the peoples of the Arctic, to listen and learn from them. This has indeed always been a concern expressed in our resolutions and mani-

fested by our commitment to the establishment of the Forum I just mentioned.

However of course there is nothing like problems or issues closer to home to focus the attention of parliamentarians. I have already mentioned climate change. By setting binding targets (20%) for cutting CO2 emissions we can send a signal to the European industry to invest in cleaner and more energy efficient ways of production. With current oil prices this makes a lot of sense for both industry and consumers! The changes to climate affect us all, are economy, our health, the prospects of future generations and may seem insuperable, but within the EU small steps when multiplied by 27 Member States can make a big difference and can also, importantly help force the pace of change internationally. The EU has an important leadership role and the Parliament is very much a part of that.

Energy issues are equally worrying us all now, hardly a day goes by without TV news stories about price hikes and concerns. It is accepted that the EU needs a proper energy policy and of course with that comes a shared interest in what happens to the potentially rich resources being revealed in the Arctic, yet in a shared concern we all have a duty to act responsibly to act with due regard for sustainability. Again you will find a sustainable approach to the environment at the core of most of what the European Parliament says.

The changes in the Arctic relate not only to resources of course but maybe also to new sea routes, new trade ways. As a major trading bloc the EU cannot ignore this. The practical effects of the changing sea scape are already with us, already we have a huge increase in sea born tourism in the Arctic seas, it worries me when you think of all the passengers on those great cruisers and what facilities does the Greenland coastguard have by way of search and rescue – not a lot I think, with the best will in the world a new Titanic is imaginable. I have little doubt that many of those tourists are my electors; that is European citizens, so we have a very real interest.

Indeed it is a truism to say that the world has an interest in the Arctic, yet what is true is that to date perhaps the EU has underplayed its involvement. We count among our Member States 3 Arctic nations, then among our closely related neighbours participating in the Internal Market through the EEA another 2 Arctic nations – more than half the numeric membership of the Arctic Council. The Parliament has always participated actively in the Standing Committee of Arctic Parliamentarians which shadows the Council. Indeed this summer I lead the largest ever delegation of EP parliamentarians to the conference in Fairbanks Alsaka. The parliament will host the next biannual conference in summer 2010 – a first – we will bring the Arctic to Brussels. We now want to see the Commission take a role in the Arctic Council commensurate with its standing and those of the Member States. *It is clear form the Commis-*

sioner's statement that the EU has much to contribute on so many of the horizontal issues under consideration. That was made also abundantly clear to me when earlier this year I had the occasion to host a seminar on Artic governance in the European Parliament, the attendance and interest were beyond our expectations. Great faith is place in the Law of the Seas Convention and the Arctic Council.

However the Arctic Council structures also have to show themselves up to the tasks ahead, as the Arctic becomes the focus of international attention and national interests there has to be a clear political framework and everyone has to keep together. One of the words you often hear in the European Parliament is *solidarity*, it is central to the European ideal. Standing by one another, but also including everyone, the Parliament has a problem with exclusion or exclusivity, the Arctic nations and peoples and those close friends of the Arctic have to find a coherent mechanism to work together to confront the challenges of the future. In the coming months we shall be debating in our Parliament the Commission communication and I hope we will be able bring the experience and optimism of a unique trans-national Parliament to the Arctic debate. I also look forward to sharing the fruits and outcomes of this conference with my colleagues.

Thank you

Setting the Scene

Presentation on Environmental and Climate Change in the Arctic:
Dr **David Carlson**, Director, International Polar Year Programme Office

Presentation on Globalization, Social Issues and Arctic Livelihood:
Dr **Rasmus Ole Rasmussen**, Senior Research Fellow, Nordic Centre for Spatial Development (Nordregio)

Presentation of consultancy report
"The European Union and the Arctic – Policies and actions":
Ms **Adele Airoldi**, Milieu Ltd.

4. Setting the scene

Environmental and Climate Change in the Arctic – Sea Ice as an Indicator and Integrator

Dr David Carlson, Director,
International Polar Year Programme Office

Recent reports (WWF 2008, UNEP 2007) have reviewed changes in Arctic physical, ecological and human systems over the past three to five years. This report, written in the last days of August for the Nordic Council of Ministers Conference 'Common Concern for the Arctic' in early September, occurs just near the end of the 2008 melting season for the Arctic, at a time of rapid changes in sea ice. This report highlights factors that will determine the final 2008 sea ice extent (and makes a prediction), draws attention to the other two large ice masses of the Arctic (the Greenland ice sheet and circum-Arctic permafrost), and makes the point that although sea ice extent represents a compelling indicator, the Arctic functions as an integrated and connected system.

One can hardly imagine a more interesting time for Arctic sea ice, or a more challenging time if one wishes to predict the minimal extent of the sea ice at the end of this year's melting season (the Arctic melting season generally ends around 20 September). Sea ice in 2007 reached a minimum of 4.2 million square kilometres on 21 September, an extent 40% below the average for the past 28 years and so low that it surprised all observers and called into question many of the assumptions we might use to estimate 2008 conditions.

We now understand that an unusual weather pattern of warm winds and clear skies played a large role in 2007 melting, and we know that we start 2008 with an unusually large amount of new (first year) ice. An international group of researchers has, for the first time and starting from May, produced, shared, and compared monthly estimates of the 2008 minimum. Those groups, from 15 or more institutions, use recent, in some cases daily, satellite, ship and buoy data, climate models, weather models, and historical data in comparisons, correlations, extrapolations and estimations – you can follow their work in very interesting detail at http://www.arcus.org/search/seaiceoutlook/index.php.

In May, those researchers produced estimates for sea ice extent this September ranging from 3 to 5.5 million square kilometres, some higher and some lower than the 2007 value, but in all cases lower than all years

since 1979 except for 2005 (5.6 million square kilometres). As the groups assimilated and considered additional data in June and July, their monthly revised estimates have stayed in the range 3 to 5.5 million square kilometres but a larger portion of the estimates have converged in the range 4.5 to 5.5. Almost every estimate, especially in themost recent reports in July, highlights the large amount of first-year ice and the potential for rapid, above-average melting of that ice during a normal or slightly warm few weeks in August and September.

Now, almost on schedule, recent satellite data shows a rapid melting of ice, with a decline of 2 million square kilometres during August (http://nsidc.org/arcticseaicenews/). What will happen in the remaining 3 to 4 weeks? We can identify three determining factors:

- Local melting by the overlying atmosphere and dissolving by the underlying ocean, with both at 'normal' or slightly above normal temperatures;
- Large scale movements of warm air and establishment of conditions that favor clear skies;
- Winds and currents that sweep thin ice into compacted regions.

We lack prediction skill for Arctic Ocean, ice and atmosphere conditions on daily and weekly time scales; we can but watch and wait. I will bring fresh information to the Nordic Ministers Conference on 9 September; even then we will have 10 or more days of additional melting. For the purpose of the Conference, and as a knowledgeable but not expert observer, I predict that 2008 September sea ice minimum will turn out closer to 3 than to 5 million square kilometres.

The development of ice-free Arctic transportation routes, occasions of ice-free conditions at the highly-symbolic North Pole, and the eventual complete sea ice disappearance in the summer season provide the general public with compelling and potent indicators of climate change. For long term planning, however, we should not get distracted by any single year. For annual Arctic (and hemispheric) heating and cooling, ice volume matters as much as ice extent - we need to monitor changes in thickness (and age) as well as changes in extent. Arctic sea ice has shown annual and spatial variability in the past and we must expect that it will do so in the future even during rapid decline; annual and seasonal predictability will remain a substantial challenge. Most important, sea ice plays a substantial role in Arctic marine ecosystems and has strong correlations with permafrost and with the Greenland ice sheet; its annual decline and seasonal disappearance portends and indicates changes in the entire Arctic system.

Real and urgent threats to marvellous ice-dependent animals such as seals and bears convey important messages to the public and to decision makers. Again, however, long-range planning requires attention to the

entire Arctic marine system. Depending on season and snow cover, useful amounts of light can penetrate through several meters of sea ice. The underside of ice becomes habitat for an interesting and unique array of microorganisms. These microorganisms can grow abundant enough to give the underside of sea ice a brownish green colour; they attract other organisms adapted to the ice environment. Animals and materials sinking from under-ice communities stimulate biological activity on the sea floor; in shallow environments, animals move back and forth from ocean bottom to overlying ice. The sea-ice sea-floor connections represent substantial components of local ecosystem productivity over large coastal areas of the Arctic. In summer, under-ice and ice-edge environments provide favourable conditions for many fish, birds, seals and whales. The presence of sea-ice thus has a protective effect on the Arctic sea floor and a stimulatory effect on Arctic marine ecosystems. The absence of sea ice will disrupt the ecological connections and expose large areas of undisturbed sea floor to exploitation, and particularly to bottom trawling.

On geologic (glacial - interglacial) time scales, the northern ice masses – sea ice, permafrost, and land-based ice sheets – grow or retreat together. On shorter time scales, decades, we can expect that permafrost degradation and the Greenland ice sheet ablation will also react to and replicate the disappearance of sea ice. We should anticipate similar patterns of decline: faster-than-expected changes, periods of high variability followed by periods of rapid decline, one or more irreversible tipping points.

We only begin to understand the Arctic as an integrated marine and terrestrial system. We see caribou become coastal species during summer months, often dependent on sea ice for migration to and from off-shore islands. We get a sense of Arctic vegetation greening and growing in synchrony with the seasonal cycles of sea ice, and of extreme northern plants and animals at risk along with the ice. We get a sense of atmosphere and ocean interacting with ice to encourage its winter growth and then force and arrange its summer disappearance. The drift of the research vessel Tara during the first months of IPY provides a reminder of how these Arctic changes interact and accelerate. Starting in the same season and following virtually the same route as the Fram more than 100 years earlier, the Tara took approximately one third of the time (14 months compared to 34 months) for a complete crossing at the mercy of wind, ocean and ice. The Arctic gives restless signals in all seasons; we have much less time than we think to understand and protect it.

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Globalization, Social Issues and Arctic Livelihood

Dr. Rasmus Ole Rasmussen,
Senior Research Fellow,
Nordic Centre for Spatial Development (Nordregio)

Setting the Scene

Climate change is a recognized reality, and changes in accessibility of the Arctic region and its resources are an obvious consequence. An increasing scientific focus on the Arctic is reporting on changes and foreseeing future environmental consequences. Parallel to this, the population in the Arctic has already been reporting on their own observations, emphasizing different implications and consequences. Some are seeing it as challenges to traditional lifestyles, while others are envisioning new opportunities. The increased interests in the Arctic, right now intensified by the economic prospects opened up by the melting of ice that previously limited the accessibility, have called for further attention. And it is quite clear that both the economic and the social life in the Arctic already has been – and in the future will be – exposed to marked economic and social impact.

Responses to environmental changes

The international focus on present climate change to some extend tends to take away the attention from the fact that life in the far north has always been dared by both regular and random changes in nature, and that communities in these regions generally have managed to adjust to these changes. The situation in Greenland during the last century serves as a good illustration of this.

A dramatic increase in sea temperature along West Greenland during the 1910s-20s resulted in a decrease in the hunting of sea mammals but at the same time caused an increase in the fish stock. Cod became the dominating species and grew increasingly fundamental for the economy. Another shift occurred during the 1980s; this time a cooling that caused a drastic decline in the cod stock and instead a marked increase in the shrimp stock. This moved the economy from cod to shrimp fisheries.

In both cases the changes have had profound impacts on the communities in the region, in the first instance with the establishment of a more permanent settlement structure, and in the second through an increased urbanization of the population. The challenges were met, and proper responses have been instigated. The ongoing changes in climate and environment, however, concurrent with pronounced confrontations from both external and internal social and economic changes, are creating new and unprecedented challenges.

Impact of new activities

Increasingly the international attention has been drawn toward the rich mineral and energy resources in the north. Most of these activities are promoted and supported by external sources of capital, and are therefore also subject to decisions made by outsiders with very limited influence by local communities or authorities. Such activities are first and foremost related to world markets, as opposed to local communities, and usually generate very few jobs in the area. As a consequence, the benefits rarely remain in the region. Similarly new transportation routes may serve the European and North American markets, but may also cause negative effects on traditional fishing and hunting in the region.

In both cases, however, some of the benefits are retained, productively for instance through wages and contracts for local enterprises, but more often as transfer payment based on royalties which in many cases are resulting in adverse effects, such as social stratification, inequity in wealth distribution, and perceived deprivation. And while local benefits stop when the resources are exhausted, long-lasting consequences often persist through industrial waste, tailings, and environmental contaminations. And large scale activities may easily be impacting traditional activities such as hunting, fishing and herding. Future influx of new species in the Arctic Ocean will give new opportunities for large scale fisheries, but may also result in adverse effects on the sea mammal stocks that the provide the stable food for many Northerners. So the opening up of new opportunities is at the same time challenging the northern communities. And a key question is how to manage this new situation.

It has been emphasized that "The Law of the Sea" already exists as a legal framework for solution of potential conflicts in the Arctic, but the situation is not perceived to be that simple by many northerners. UNCLOS is based on the recognition of rights of states, but not on rights of people. Classic notions of state sovereignty, therefore, cannot adequately address the issue of sovereignty of peoples! Instead the principle of subsidiarity may be providing a conceptual tool to mediate polarity of pluralism and the common good in a globalized world. It may provide a tool in making sense in relation to future management of Arctic resources, granting the peoples in the Arctic a voice by treating the Arctic as a distinct region in international society. Such a process has already been started for instance in the new Ecosystem Approach to Management by ICES in their approach to future fisheries management.

Complex economies

Renewable resources such as fisheries and hunting have been the economic basis for most northern communities. With an increase in the scale of production, however, fewer persons are involved. And due to harsh competition on the world market, prices – and thereby incomes - have been reduced considerably. Adding to this decline has been the fact that

previous temporary jobs in local processing industries have been replaced by processing onboard the offshore trawlers or have been moved to Asia or other low-wage areas.

The production of customary food continues to be of significant economic, social, cultural, and symbolic importance, and some commercial initiatives are inspired by the customary models, such as the local informal market in Greenland, and programs that support hunting and fishing activities in the Canadian Arctic. In many cases, however, these activities tend to be reduced to leisure time pursuits.

So even resource exploitation is still considered to be the main economic basis for communities in the North, the reality is, that the third sector – the service sector with wage work in administration, education, social service etc. – today is the main income source for most families, and has become the key set of activities characterizing the north. In most of the circumpolar north the third sector generates more than 70 percent of the economy and creates jobs for 80 percent or more of the employed persons. Although very often based on transfers either from outside the region or from royalties in connection with resource extraction, the sector is ensuring good income in northern communities by providing stable jobs.

This holds true especially for women, who seem to be more open to the new activities, not only accepting jobs outside the traditional primary sector but also ready to accomplish the training and educational requirements. In these communities an increasingly large number of households are depending on the incomes generated by females. In Greenland more than 70 percent of the professional hunters and fishermen have income from second jobs. And in more than 50 percent of the hunting- and fishing-dependent households, the major part of the income is generated by the wives. These incomes provide highly needed investments in hunting and fishing, and ensure an acceptable household income.

Economies in the North, however, are not determined by the one dimensional capital/wage and transfer payment rationality, but very much influenced by other rationalities. So besides the dominating formal economy, the informal economy and subsistence activities with individual and family based activities in hunting and fishing ensuring basic supply, are still playing an important role.

In many small settlements where out-migration has resulted in an age structure dominated by pensioners, the main cash-income source is very often the pensions. Besides the formal incomes, however, the subsistence and informal economic activities contribute to the family incomes, such as informal sale to relatives, neighbours, on local markets, to institutions, sharing with family and neighbours, etc. And in many communities both subsistence activities and informal sale may be decisive for the continuation of hunting and fishing, providing the basic sustenance and a small cash income. In addition, these activities are not only important in rela-

tion to the economies, but are also reflecting activities of social and cultural importance.

Responses to globalization

The changes in the overall economic structure and the influence of globalization are affecting the household structures as well as the settlement pattern. An increase in the general pattern of out-migration of both males and females, looking for education and work opportunities outside the villages and smaller towns, are contributing to an increased urbanization in the Arctic. And these years the process has been accelerated by a higher rate of out-migrating females, eventually leading to a substantial increase in the number of households consisting of single men in the villages.

Research from northern regions indicates very similar patterns regarding affinity to rural community life. Compared to males, more females tend to migrate permanently away from their home community and region. This is not only a northern issue. The restructuring and decline of primary and secondary activities in rural areas and the growth of the service sector fundamentally affect women, who first of all are looking for job opportunities that better fit their qualifications, and provide opportunities outside traditional economic activities. And these are only to a limited extent found in the rural setting, while abundant in urban areas.

The question of opportunities has very much to do with availability of educational options, first of all through national programmes, but increasingly through new initiatives regarding circumpolar cooperation in education such as University of the Arctic, providing a new world of possibilities. It has, however, also much to do with the difference in gendered approaches to education and responses to issues such as globalization and knowledge societies. Already in the 1990s women had become a majority group in relation to higher education in many parts of the Arctic. Except in parts of northern Canada, where the level of education in a circumpolar comparison turns out to be remarkably low, the general pattern today show that 55 to 70 percent of persons with tertiary education are women, while men tend to finish their educational careers with primary or secondary education, or vocational training. This very much contrasts with ten to fifteen years ago, when men were dominating the higher education sector and women's opportunities were limited to vocational training.

The concept of better opportunities also applies to availability of services and a broader spectrum of cultural activities. While males seem to be content with a single shop where they are able to by the most needed things such as the latest action films on video, and content with a burger- or pizza-bar, females tend to be much more demanding when it comes to diversity in social and cultural offerings. They often require more varied shopping opportunities, different café options, theatres, art exhibitions, and the like, in order to comply with contemporary ideals. The Internet

may provide some of these opportunities, but the cultural and social activities available in the villages typically do not appeal to younger women.

The new demographic challenges

These different responses to changes of course affect the options of staying or leaving. When their home communities provide neither educational nor job opportunities, young persons who consider this to be an important option simply have to leave in order to pursue a future for themselves. And when they have left, many of them never come back to stay. It is especially women in the age group from sixteen to thirty-five who are leaving, the youngest seeking education and the older seeking jobs. Many northern communities are therefore experiencing a situation where there are only six or seven females to ten males. And this gender imbalance has a marked impact, affecting both social life and the economy, through fewer opportunities for marriage, for the maintenance of family life and family structures, for natural reproduction, as well as for influencing cultural activities.

The ongoing changes are producing very different gendered responses. First of all, this difference is exhibited in relation to the question of work and work-related activities. While the perception of customary male activities related to renewable resource exploitation seems to be "sticky", females tend to be much more open to change. The relatively high number of women employed in the service sector has been argued to represent an escape valve away from traditional activities, where the male activities have become increasingly mechanized and masculine and the female activities have disappeared. It is, however, also a reflection of differences in attitudes toward a diversified socioeconomic structure in which women participate and receive both a salary and social protection.

Northern communities are today experiencing what could be characterized by a new phase in the Demographic Transition: different gender and generation responses to changes. As a result of this process there seems to be developing a divide between village life and large scale extractive industries, both dominated by males, while towns and cities increasingly are characterized by 3rd sector activities, actively chosen by females through a "step-stone" process of migration, from villages to towns, from towns to regional centres, further on to the capital regions, and eventually out of the country.

Conclusion

It is important to react to changes in the Arctic! But it is also important to realize that the ongoing changes are multi-dimensional. Changes in climate and the environment are important factors, but in relation to the future of settlements, communities and cultures, in the end it is the people in the Arctic that are decisive!

The European Union and the Arctic – Policies and Actions

Ms Adele Airoldi,
Milieu Ltd.

The report "The European Union and the Arctic" is an inventory of the main Arctic-relevant EU policies and actions. It also includes in most cases elements of assessment, derived from relevant documents and interviews with stakeholders – both EU officials and others. In the short period between autumn 2007, when the Nordic Council of Ministers commissioned the report, and its finalization in June this year, there has been an unprecedented surge of interest for the Arctic in the EU. It remains to be seen how the new interest will be translated into action. The report reflects to the extent possible the recent developments; the situation may be in rapid evolution for some aspects.

This presentation will highlight the main elements of the report, and conclude with a few thoughts on possible future developments.

The Arctic was not in the minds of the founders of the EU, for evident geographical and political reasons, and remained largely ignored for a long time, except for occasional interactions.

The EU enlargement to the Nordic countries led to the establishment at the end of the 1990s of the Northern Dimension, as a framework to address issues in the European north. The Northern Dimension is the only EU policy with a declared Arctic component, the so-called Arctic window. However, the focus of the Northern Dimension on North-west Russia and on the Baltic region appears so far to have taken priority over the development of a truly Arctic dimension, addressing a circumpolar perspective.

While not developed with the Arctic in mind, several EU sectoral policies impact on the Arctic region. Regional policy and agricultural/fisheries policy are important for the northernmost areas of the EU and adjacent areas, as they transfer resources, and foster cooperation reaching outside EU borders; development policy gives an important contribution to the economy of Greenland. However, the rationale for these policies is independent of their being implemented in the Arctic rather than in any other part of the EU – they cannot be described as elements of a conscious EU Arctic policy.

Presently, research and environment are the EU policies most directly relevant for the Arctic. Research policy finances the study of Arctic topics as well as infrastructures of relevance for the Arctic. The implementation of EU environmental legislation, such as on air quality or chemicals, has a direct effect on pollution in the Arctic. Moreover, the EU supports

with its full weight strong international action in fields (climate change, biodiversity, chemicals) of great importance for the Arctic.

The recently launched Integrated Maritime Policy, which aims at covering in an integrated way EU activities in the fields of maritime transport, fisheries, environmental protection, energy, sea and deep sea international legislation, is potentially highly relevant for the Arctic region.

Climate change has been the main catalyst for new awareness for and interest in the Arctic in the EU, as in the world in general. EU research policy– reflecting also the interest of several member states and the impetus given by the International Polar Year – focused at an early stage its Arctic-relevant activities on topics related to climate-change.

As climate change is moving higher and higher up the list of priorities for the EU, attention to the Arctic has increased in parallel in a number of other EU sectoral policies.

A determining element for such attention appears to have been the realization of the new opportunities offered by a future, largely ice-free, Arctic Ocean – the exploitation of new or increased energy, mineral and fisheries resources and the opening of new navigation routes – which has triggered the reflection ongoing in the Commission on the geopolitical importance of the Arctic region for the EU. At the same time, new problems created in the Arctic by climate change, environmental problems as well as problems linked to international security, are also presently being considered. In this last connection, a paper by the EU High Representative and the Commissioner for external relations explicitly mentioned the possibility of an EU Arctic policy.

The distinguished representatives of the European Commission, the Presidency of the Council, and the European Parliament have given testimony to this conference of the new interest of the EU for the Arctic and of current EU initiatives in this field.

While the new opportunities could well take decades to materialize, and an EU Arctic policy– if it is going to materialize at all- is at this stage still a distant perspective, these developments appear to head in the direction recommended in the conclusions of the report, echoing the appeal contained in a 2004 report by the European Environment Agency: Europe should care about the Arctic. The main message of the present report could be summarized as follows:

- The EU already impacts on the Arctic in many ways.
- The increasing environmental, economic and political importance of the Arctic, its proximity to and historical links with Europe, warrant a conscious effort for the EU to develop as a minimum a more systematic and proactive approach.

In this context, two main challenges need to be addressed.

The first challenge is ensuring better consistency of EU attitude to and action in the Arctic, so far rather fragmentary and occasional, driven by circumstances, sometimes even by the interests of individual stakeholders. While the integrated maritime policy could well become a useful instrument for defining a more coherent EU attitude to the Arctic Ocean, the concept of sustainable development, with its three components – environmental, economic and social- would be the best guide towards a more consistent EU approach. It would also imply greater EU attention than hitherto done to the human element – Arctic inhabitants, including indigenous peoples.

A clearer definition of the EU attitude to the Arctic could be accompanied by concrete proposals for action, both internally to the EU and in the wider international context. Systematic consideration of Arctic issues could be included in the dialogue with circumpolar countries and Arctic cooperation organisms. In the broader international context, it would be important that the EU continue actively to work within UNCLOS, the recognized main instrument for governance in the Arctic, as well as within other international instruments aiming at the safeguard of the Arctic environment and its inhabitants.

The second challenge would be the establishment in the European Commission of a central function able to ensure a more consistent approach to Arctic issues, as advocated. This function should be supported by an efficient network reflecting the multiple Arctic-relevant aspects of EU policies and actions. It would act as the coordinator and internal contact point for the EU, and the EU contact point towards the exterior.

If it decides to do so, the EU could play a positive and constructive role in the Arctic, and the interventions by the EU representatives have given encouraging signals. The present conference will give a precious contribution to this process.

Finally, concluding this presentation, I would like briefly to raise, on a personal basis, two questions, which have emerged during the preparation of this report and are in my mind relevant, particularly in the perspective of a full-fledged EU Arctic policy.

The first question is whether the EU would be able to back its interest in the Arctic with enough substance, that is to what extent horizontal EU interests in an EU Arctic policy would match the interests of the EU Arctic Member States. Energy and transport, possibly the most powerful drivers for an EU Arctic policy together with security, are issues of general interest for the EU rather than specific interests of the Arctic States within the EU. On the other hand, in these fields EU competence is rather limited vis-à-vis Member States, or in respect of the private sector. The challenge would be to define the level of ambition of an EU Arctic policy in a forward looking yet realistic way.

The second question, linked to the former, is how an EU Arctic policy would be developed in the absence of a genuine Arctic constituency. So

far, no strong well-defined and organized constituency, which would support and defend the real interests of the Arctic region and its inhabitants, appears to have emerged in the EU – be it Member States, industry, Parliamentary groups, or civil society. Hence a lack of visibility for Arctic issues or, where visibility exists, the prevalence of stronger constituencies, with interests not necessarily compatible with those of Arctic stakeholders – the recent Commission proposal for a ban on trade in seal products is an example. In this situation, as interest and appetite for Arctic resources increase, the identification and formation of an Arctic constituency would be important to ensure the legitimacy and the balance of an EU Arctic policy, avoiding a top-down approach.

Panel discussion

Panel 1: Terrestrial Living Resources

The Panel was asked to focus on the following issues:

Effects of climate change and consequences of melting permafrost and glaciers on the protection and sustainable use of terrestrial living resources. Direct and indirect impacts of current agricultural and forestry policies (economic, social and environmental). Maintenance of biological diversity and use of genetic resources. Land use and management of natural resources. Impacts of industrial and radiological pollution.

Introduction:	*Mr Jan Vapaavuori*, Finland's Minister for Nordic Cooperation
Moderator:	*Ms Annika Ström Melin*, Journalist
Panellists:	*Ms Malin Brännström*, Legal Advisor, National Union of the Swedish Sámi People
	Dr Jesper Madsen, Director of Research Department, National Environmental Research Institute (NERI), Denmark
	Mr Yrjö Eljas Norokorpi, Area Manager, Natural Heritage Services of Metsähallitus, Finland
	Mr David Stanners, Head of Programme, Strategic Knowledge and Innovation, European Environment Agency (EEA)

Introduction –Terrestrial Living Resources

Mr Jan Vapaavuori,
Finland's Minister for Nordic Co-operation

Check against delivery

Dear participants,
This conference is an important milestone for future cooperation in the Arctic region. The Arctic has gained new impetus in the wake of the climate change which brings about grave challenges to the very existence and wellbeing of the northern peoples.

In today's meeting we embark on a review of policies and actions for the Arctic by mapping those areas of cooperation where both existing policies need strengthening and where new initiatives are called for. The issues which we shall be discussing are all high on the Arctic agenda. This gives our proceedings certain urgency.

- Through effective mitigation and adaptation we may be able to turn threats into opportunities. Sustainable development should be our guiding principle. For that aim, more international cooperation is needed especially in the fields of sciences and research.
- The Nordic region is naturally and strongly engaged in the Arctic, and all the Nordic countries and autonomous territories are represented in the Arctic. The Nordic countries have a clear self-interest in this unique and vulnerable region.
- The Nordic countries, through their cooperation within the Nordic Council of Ministers, are preparing a new Strategy for Sustainable Development. In this new strategy, special attention is given to the Arctic. The consequenses of the climate change to the livelyhood of the northern peoples can be severe, and their special conditions must be taken into attention. Environmental risks can only be avoided through commitment to sustainability in all activities.
- The Nordic Council of Ministers has recently also discussed a new Arctic Cooperation Program. The program aims at consolidating the work already begun on climate change and environmental toxins. The program will also include measures to preserve the heritage of the vast range of research activities that have taken place during the International Polar Year.
- In the European Union context, the Northern Dimension – a common policy of the EU, Russia, Norway and Iceland – has proved to be an excellent framework for cooperation in issues relevant to the North. Now it is time to open up the "Arctic Window" of the Northern Dimension even wider.

- We highly appreciate the increasing contributions by the European Union – especially the Commission – to Arctic research and environmental protection. The forthcoming Arctic Communication by the European Commission will provide an exellent launching pad for newly intensified Arctic actions. It is natural for the EU to be closely involved in the work of the Arctic Council. For the Arctic Council to utilize the EU resources effectively and for the EU to become more integrated in the work of the Arctic Council is a win-win situation.
- Finland is fully committed to environmental protection and sustainable development in the Arctic, including the Arctic Ocean. We fully acknowledge the leading role of the Arctic Council as the only circumpolar cooperation arrangement. Recognising the need for increaseed political dialogue among the Arctic states, coastal and non-coastal states alike, we are prepared to consider widening the Council's agenda as long as it does not endanger the Council's core functions.
- Over the past centuries, Finland has accumulated a wide range of Arctic know-how. We have experts, in research institutions and businesses alike, in such fields as offshore technologies, maritime transport, Arctic construction, renewable energies, and waste management, just to mention a few examples. Naturally for Finland, forestry has always been one of the cornerstones of our livelihood.
- The timberline forests form an important vegetation zone for every circumpolar Arctic State. They are a significant source of resources in the Arctic. On a circumpolar scale, much more needs to be done for the protection of the timberline forests. Our experience shows that more nature-oriented forestry methods are needed especially in these vulnerable areas, because biodiversity helps a forest to recover from a disturbance. Therefore, proper forestry methods are tools for both mitigation and adaptation. – Our forestry expert, Mr Norokorpi, will expand on this theme further in his own presentation.

Thank you for your attention.

Climate Change and Reindeer Management

Ms Malin Brännström,
Legal Advisor,
National Union of the Swedish Sámi People

The Sámi people are one people living in four countries – Norway, Sweden, Finland and Russia – two of them being members of the European Union. The area where the Sámi live is within the Northern parts of Scandinavia and in the Kola Peninsula. This area is called SÁPMI. The Sámi populated the area long before the present states emerged. The Sámi is one of the last remaining indigenous people in Europe, giving them a special position within the European Union.

The Sámi have for thousands of years been living with the reindeer, that through the entire history has been the most important animal of prey. The reindeer wanders between different grazing areas, from the high mountains slopes in the summer down to the forests in the winter. The nomadic Sámi culture has developed according to the reindeer migration. Reindeer herding, although in modernised forms, is still the core of Sámi culture and the basis for then common rights that the Sámi have to their land.

The Sámi produce different products from the reindeer. Reindeer meat is among the best and healthiest meet you could eat. The good and healthy taste comes from the fact that the reindeers breed on natural pasture.

The Sámi must be granted access to forest lands for a roaming style of reindeer grazing. The forests must have a good supply of ground-growing lichens. The extent of available winter pasture determines the size of the reindeer herds. Without the possibility to graze on different kind of forest lands, the Sámi will face problems feeding the reindeer. For herding to continue as a practice, the Sámi need both winter and summer grazing lands.

The conflict of interest when it comes to land use is one of the greatest threatens to the Sámi culture and reindeer herding. During the past 30 years the Sámi have lost large areas of pastureland due to various kinds of economic interests. The Sami lifestyle is challenged by land exploitation such as forestry, damming, mining and road building.

Modern forestry has in particular made it more difficult for the Sámi to feed their reindeer during wintertime the natural way. Since the 1960´s forest management practices consisting of clear-cut logging, monoculture plantations and other new techniques have been dominant. Soil management practices, common for plantations, destroy the layer of ground lichens significantly. Modern forestry has been an impoverishing factor for both reindeer grazing and biological diversity. Despite this, the Sámi are not trying to bring an end to forestry – they simply want to be allowed the

traditional right to reindeer grazing in the forest. We think that neither forestry nor reindeer herding can claim superior rights to the forests in northern Sweden and Finland. This calls for rules governing the co-existence and mutual respect is needed.

The situation is presently getting worse due to new national policy regarding increased levels of harvest. The conflicts of interest are not being handled. As an example Sweden and Finland have not ratified the ILO Convention No 169 regarding indigenous people. And now there is a new challenge when the weather is changing.

As in other parts of the world the indigenous people living closest to nature will notice and be victims of the changes in climate first. Reindeer herders are living very close to nature. During the last 20 years reindeer herders has noticed changes in the environment. The amount of snow and ice in the mountains during the summer is decreasing. The snow is melting and the trees and bushes are growing further up in the mountains. This will have direct effect on the reindeer management.

The two last winters have been very difficult for grazing. The temperature has been high and the wet weather led to an ice layer on the ground that made it impossible for the reindeer to reach the lichen on the ground. Reindeer were starving and the reindeer herders had to buy expensive food to the reindeer. If this is what the winters will be like in the future the reindeer management will probably disappear. The risks and costs will be too high.

A changed climate will probably lead to more industrial activities within the Arctic area. This will lead to an increasing conflict of interest. As the pressure on the reindeer management is hard already this will probably lead to great challenges for the Sámi. The professor of reindeer management Öje Danell has concluded that this is the greatest threaten to the reindeer management and the Sámi culture.

The loss of land has made it very difficult for the reindeer herders to respond to climate change. It is very difficult to adjust when the situation is already so complicated.

To prevent these effects the conflicts of interest must be handled both on a national level and on an international level. Policies need to be taken that makes it clear that other exploitations of land must be adjusted to the needs of the reindeer management and that they can not be allowed if they will threaten reindeer management. This is also the conclusion of a Swedish governmental assessment about the effects of climate change (SOU 2007:60). Sweden and Finland must proceed towards the goal of ratifying ILO Convention No. 169. It is also very important that Sámi and other indigenous people are part of the decision making process. To have hearings with the indigenous people is not enough.

To be a part of the European Union has in many ways been a challenge for such a small group of people with such a different lifestyle. The system does not take into account the Sámi way of living. For many Sámi

it is not so obvious that Sápmi is a part of the European Union. The knowledge about the Sámis situation is very low within Sweden, Finland and the European Union. For small groups it is very difficult to work on a European level. Our organizations do not have the economic strength to be heard in Brussels. I am therefore very happy that I have the opportunity to participate in this interesting conference.

Arctic Terrestrial Ecosystem Responses to a Warming Climate

Dr Jesper Madsen,
Director of Research Department,
National Environmental Research Institute (NERI), Denmark

The Arctic is characterised by relatively simple terrestrial ecosystems with a flora and fauna adapted to extreme conditions in terms of cold, drought, radiation and short growing seasons. On the one hand, this makes the flora and fauna resistant to fluctuating climatic conditions but, on the other hand, susceptible to abrupt directional changes.

The forecasted and already ongoing global climatic changes will be first and amplified in the Arctic. Indeed dramatic changes are already reported. In Northeast Greenland, Zackenberg Ecological Research Operations (ZERO) has monitored annually over 1500 variables concurrently across the physical and biological compartments of a high-Arctic terrestrial ecosystem. This makes ZERO the most integrated and comprehensive long-term monitoring and research programme presently operating in the Arctic. A warming of 2.25 ^{o}C in the annual mean has been recorded during the last two decades, and the four warmest years within the last century were all recorded in the last 10 years. Precipitation (mostly as snow in winter) increased concurrent with a retreat of the East Greenland sea ice, creating more oceanic conditions. Despite more snow fall, snow melt in Zackenberg has advanced by nearly a month (1996–2005) and, hence, the snow free growth season has been elongated. The earlier thaw has caused an extreme advancement of emergence of invertebrates and flowering of plants. Across 21 species or taxa, the mean advancement in phenology was 14.5 days/decade, with up to more than 30 days in flies (*Muscidae*). The earlier phenology was most pronounced at lower trophic levels whereas it was modest or lacking at higher trophic levels (wading birds). Generally, such discrepancies raise concern for a mismatch in timing in the relationship between predators/grazers and their food supplies, which may destabilise ecosystem functioning. One such example is provided by reindeer and the plant food supplies in West Greenland. Due to earlier springs in the recent decade, plant growth has become earlier and more synchronised, which creates a nutritive problem for calving

reindeer which need a rich food supply over an extended season. In consequence, the production of calves has decreased dramatically. Another case of such climate-driven cascading effects comes from the northern cyclic predator-prey interaction. Voles are known to show 3–4 year cyclic population densities in concert with their mammalian or avian predators. Due to more unstable winter weather conditions (lack of protective stable snow cover), vole cycles have been observed to fade out in several cases; in consequence of the declining food supplies, long-term declines have occurred in the predator abundances.

Nevertheless, in the short-term, i.e., within the next 1–2 decades, it is predicted that warmer climate will generally be beneficial to most plant and animal populations because of an extended growth and reproductive season. However, earlier snow melt may give rise to droughts later in the season, with negative consequences for reproductive output. Trophic mismatch may lead to long-term declines in species, especially at higher trophic levels, unless they have a phenotypic plasticity to make behavioural or ecophysiological adjustments to counteract.

In the longer term (2+ decades) it is likely that successions will emerge in plant and animal communities, and the structures of ecosystems will undergo changes. On a regional scale, there will be a northward shift of climatic zones, and the high-Arctic climate zone will be pushed towards the Arctic Ocean. Some of the high-Arctic specialists may still find refugia at high altitudes, but many are predicted to become endangered due to this “squeeze”. Due to higher degree of weather variability, ecosystem stability may become affected.

The rapid changing global environment requires continuous and detailed monitoring for us to understand how the Arctic ecosystems respond to climatic change and how we best adapt to the changes. To be most efficient, station networks across the Arctic should focus and coordinate their activities to enable comparisons and cross regional analyses of trends. Funding should be made more widely available for long-term monitoring in concert with research. The changing ecosystems and higher degree of variability will have consequences for the possibilities of humans to utilise the natural resources. Combined with a growing physical development of the Arctic (oil, gas, minerals, tourism, agricultural production), the cumulative pressure on the living resources increases and requires careful monitoring and management in order to maintain healthy and sustainable populations.

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Sustainable Use of Timberline Forest and Climate Change

Mr Yrjö Eljas Norokorpi,
Area Manager,
Natural Heritage Services of Metsähallitus, Finland

The northern timberline forests form an important vegetation zone across each of the circumpolar Arctic States. The forests are a vital resource in the Arctic region as a source of timber, fuel wood, game, fish, berries, recreation, tourism and reindeer pasture. Many human activities occur within the zone, and some are wholly dependent on it. The forests also comprise the entire cultural environment of many indigenous peoples in the region.

The growth and reproduction of the timberline forests are governed by the cold northern climate. At the broad, long-established interface between forest and tundra, growth is thoroughly exposed to severe climatic conditions, hazards and air pollutants. Here, a crucial phase in the afforestation process of open land is the crown cover closure stage. This forest is more sensitive and less resistant to damage or disturbance than more southern or lower elevation forests, and has a slower rate of recovery.

Timberline forests are defined differently in each country. In this context, timberline forests refer primarily to forests north of the Arctic Circle. Finland and Sweden are climatically in the most advantageous position due to the warming effect of the Gulf Stream. Finland's forests north of the Arctic Circle, for example, are in significant industrial use, although the emphasis on multiple-use increases with latitude. In this region, all forest use planning is necessary to be carried out in strict accordance with participatory planning best practices.

The advancing effects of climate change

The effects of climate change intensify with increased latitude, and the northern timber line is a sensitive indicator of climate change. Conservative scenarios predict the annual mean temperature in the region to rise by a further 2°C by the year 2100. In northern Fennoscandia, such a rise in temperature would raise the timber line 350 metres higher on the fells, and cause the open fell to retreat to above 1000 metres elevation. This would be devastating for the sensitive and rare plant and animal species of the open fell habitat, which have little margin for adaptation and minimal space for propagation. The change in vegetation zones means the transition of entire ecological communities. The speed of this transition is considerably slower than the predicted pace of climate change. In addition, the sunlight zones remain unchanged. The various species have markedly different reproductive, propagative and adaptive capacities, thus leaving them vulnerable to a range of disturbances and imbalances,

and susceptible to a variety of threats. Increasing annual variations in weather conditions and occurrences of extreme phenomena also place further pressures on species adaptation.

Mitigating climate change

Climate change cannot be prevented, but the pace of change can be mitigated and its effects tempered by taking adaptive measures. The EU has made tackling climate change one of its core internal and external objectives, and has committed itself to reducing its greenhouse emissions and increasing use of biofuels. However, the role of the forest as a vital carbon sink and source of bioenergy is not included in the EU's climate and energy strategy. This role must, at any rate, be given broader recognition in the new international climate agreement than it currently receives under the Kyoto Protocol. Moreover, the key challenge lies in meeting different raw material needs without endangering the biodiversity and multiple use of forests.

More than 10% of the EU's annual fossil emissions are sequestered by its forests – in Finland and Sweden the figure accounts for significantly more than their annual domestic fossil emissions. Today, the average forest carbon stock stands at 4 kg/m^2, in mature or old-growth forests the figure is 2–6 times higher still. In Finnish Lapland, forest growth has increased by nearly 50% in two decades. This growth has been influenced, for example, by increased CO_2 levels, nitrogen deposition and, in particular, increased growing stock due to low harvesting rates, with only about half of the annual growth being felled.

The forest's capacity as a carbon sink can be developed by increasing our growing stock, increasing the use of wood in construction and improving the carbon sequestration capacity of peatlands. The growing stock can be raised by increasing conservation areas and by developing forest management methods. The importance of the EU's Natura 2000 conservation area network is vital in this respect, while also retaining species diversity. The average level of conservation of forests in Finnish Lapland is 30%, reaching around 90% in northernmost parts. The conservation level further south, however, remains in need of supplementing. Finland has cooperated bilaterally with Russia since the 1990's to supplement the conservation area network of Northwest Russia in accordance with EU policy. An important part of these conservation areas is the currently planned Green Belt of Fennoscandia, which stretches along the Finnish-Russian border from the Gulf of Finland to the Barents Sea.

In managed forests, the margin for further increasing the growing stock is considerable. This requires adoption of more nature-oriented forest management practices that mimic the natural processes and dynamics of the forest ecosystem. The core objective is to increase the amount of uneven-aged and mixed species forests that are kept continuously well stocked and productive while, in doing so, improving felling potential.

While being more natural and suited to multiple-use, mixed uneven-sized forests are also considered to have a high resistance to a multitude of natural damage such as storm, snow, fire, fungi and insects, as well as anthropogenic damage such as air pollution, climate change and increased UV-radiation intensity. The traditional regeneration methods of clear cutting and seed-tree cutting involve the removal of an entire growing stock, leaving the stand sparsely stocked for a long period. Particularly in northern forests, there is a current need to apply nature-oriented forest management methods.

All drained peatlands are emitters of CO_2, emissions which accelerate immediately after draining. Over half of all peatlands in Finland have been drained for commercial use, some of which are unsuitable for growing trees. Ditch-filling operations have succeeded in restoring some peatland areas, and these efforts should be further expanded. Fuel peat consumption has increased in recent years. No further increase in the use of fuel peat can be justifiable, as peat is ranked to fossil fuels. Cut-away peatlands can, however, be reused for bioenergy cultivation, for example through short rotation stand cultivation.

Adapting to climate change

The same methods are needed to adapt to climate change as are needed to mitigate it. The key lies in fostering high ecosystem biodiversity by maintaining an extensive conservation area network and applying nature-oriented forestry practices. Safeguarding species and genetic diversity ensures the health and viability of the natural environment and its ability to react flexibly to change. The key to the forest's ability to recover from disturbances thus lies in its biodiversity. Many endangered species, and thus biodiversity itself, are wholly dependent on the continuity of their biotopes. A coherent, comprehensive conservation area network serves as a vital ecological corridor as climate change speeds up and favourable climatic conditions for vegetation zones shift.

The existing models of climate change have many uncertainties as the future is difficult to predict. It is our duty therefore to step up our efforts in studying and monitoring climate change, and to work more closely together to combat it.

Europe's Responsibility for Combined and Cumulative Effects on Arctic Environmental Change

Mr David Stanners,
Head of Programme, Strategic Knowledge and Innovation,
European Environment Agency (EEA)

In the interventions from some of my co-panelists, we have heard how climate change will affect the Arctic terrestrial environment. However, climate change is only one of many pressures on the Arctic environment. The combined and cumulated effects from numerous human activities can simultaneously cause serious and pervasive effects on nature and on people living in the Arctic – indigenous and others – and the sources of the pressures leading to such impacts can be both global and local. Thus for example Reindeer and their Sami herders can face a dire future if changing winter climate causes the pastures to get covered by ice, the tundra continues to be destroyed and fragmented from different types of local developments and the lichens get contaminated by radioactivity or other hazardous substances carried there by long-range transportation processes. This creates a complex challenge to manage Arctic ecosystems. Consequently, to design effective and efficient responses and adaptation strategies it is important to assess the factors leading to climate change together with other pressures, and also to clearly identify the sources of the pressures causing the problems so that action can be taken in the right place.

Pressures originating from outside the Arctic

Considering first the pressures on the Arctic environment which are imported from outside the region, the most typical examples are emissions of greenhouse gases leading to climate change and hazardous substances being transported to the Arctic via air, oceans and rivers. Among these, we can mention smoke particles, possibly a strong contributor to the melting of Arctic snow and ice due to its changes to the radiative properties of the white surfaces, and chemical compounds, such as mercury and Persistent Organic Pollutants (POPs)[1] leading to serious contamination of the Arctic environment and food chain.

Emission accounting makes it possible for us to say that the 27 European Union member countries emit approximately 13 % of the global greenhouse gases. However, we do not know the European proportions of the many hazardous substances emitted and reaching the Arctic since we do not have detailed source-sink relationships, such as under the Gothenburg protocol for acidifying substances. The "grasshopper" effect that promotes the long-range transport of POPs from low to high latitudes is

[1] POPs are mostly pesticides or industrial chemicals.
See http://en.wikipedia.org/wiki/Persistent_organic_pollutant with further links.

known. If we combine this with simple knowledge about ocean currents (recall the direction of the Gulfstream) and dominating wind patterns leading to the Arctic, this should persuade us that Europe has a clear and direct role and responsibility helping to attenuate the toxic effects of these substances.

Pressures originating from within the Arctic

Secondly, there are activities in the Arctic region which are sources of important pressures on the environment. The increased demand for resources will be a major driver for a growth of many of these in the future: oil and gas development, mining, logging – and associated with this, urban and infrastructure developments (e.g. transport & energy). Europe has an indirect role in these activities through the importation of raw materials and goods. But in a globalized economy, our role can sometimes be even more active, such as when European national and multinational registered companies participate in oil and gas activities, construction work and trade, or own mines and factories in the Arctic states. We also export our goods and services to the Arctic region, thereby also exporting e.g. hazardous chemicals in the products consumed in the Arctic.

How Arctic changes can affect Europe

The effects we see in the Arctic, partly caused by European activities, can also have serious repercussions for Europe. Through strong feed-back mechanisms in the climate system (such as the albedo effect from diminishing snow and ice surfaces, release of methane and CO_2 from the permafrost, substitution of tundra with forest absorbing more heat radiation than shrub), Arctic changes accelerate global warming. Europe also reimports contaminants such as through migrating species and imported food items. This illustrates how interlinked our environment is – Europe and the Arctic are close relations.

Assessments are vital for understanding our role

Since Europe is a part of the problem for the Arctic, Europe also must develop policies to be a part of the solution. But what is Europe's ecological footprint on the region? How serious is it? We must know our roles and responsibilities before we can design effective responses.

At the European Environment Agency (EEA) we believe we have an important role to play here by contributing to the assessment of these issues. Assessments is a major mechanism for bringing scientific knowledge into the policy debate and decision making processes. The Arctic Council has a prominent record of high quality assessments that we recognize, and to which European scientists have also contributed. In addition, we need more tailor-made assessments for European audiences. To be useful to policy makers we have to be able to attribute the impacts to

the activities which cause the pressures in the first place. And we must be able to differentiate both originating sectors and regions.

A plethora of assessment tools are available to be applied at different levels: Environmental impact assessment (EIA) and strategic environmental assessment (SEA) allow for consideration of environmental impacts before decisions are made about projects and policies or programmes respectively. To support policy evaluation, planning and development at a more strategic level, we also have broad state of environment reporting (SoE), integrated assessment and integrated sustainability assessment for managing transitions with civil society and community involvement. Accounting tools can also be extremely powerful for identifying and managing the impacts of the responsible sectors. EEA has also experienced the usefulness of scenario building for long-term strategic discussions (in particular about land-use developments in Europe). Such techniques should also be applicable for the Arctic in a period of rapid transformative developments.

It is not straightforward to respond to the indirect responsibility that Europe has for activities in the Arctic: should Europe be accounted for the environmental effects of outsourcing production? Should consumers take external effects into account when purchasing their goods – based on which knowledge? These are difficult questions which require thorough grounding in analysis and data to demonstrate and quantify the links. And for this a truly integrated sustainability approach is needed encompassing the economic and social dimensions of the equation.

European responses – some principal considerations

In order to develop good understandings of the problems and design efficient and effective responses we need research, monitoring and assessments and sharing of data. The Arctic Council and its working groups already have a long track record in this area and more detailed accounts are available at national level. But we can go further. We need take account of the information and tools which already exist across many different organisations and communities and make them more widely available and usable by the large variety of potential users. This is why the EEA supports the initiative for Sustained Arctic Observation Systems[2] (SAON).

Europe has a lot of experience in this area and especially recently in how to make such information available and usable by a variety of users. Relevant initiatives include:

- INSPIRE, that has made it possible for Europe to establish standards for unified presentation of geographical information[3];

[2] SAON - see http://www.arcticobserving.org/
[3] INSPIRE – see http://www.inspire-geoportal.eu/

- The Shared Environment Information System (SEIS), that is a strategy for how to make the most out of all the environmental information gathered by a multitude of European data providers[4];
- GMES (Global Monitoring for Environment and Security), which involves a range of monitoring initiatives both from space and in-situ[5].

All these are tools necessary for making informed, knowledge-based decisions. This experience can all be applied to the Arctic. Another major consideration for us, is that Arctic systems – like SAON – become inter-operable with European and global systems.

But when problems are defined and delimitated and options are considered, what could the European contribution towards the Arctic be? Here are four ideas:

- Signing up to existing treaties and protocols. Not all the European states – nor the Arctic states – have signed and ratified the most important agreements which would make a difference for the Arctic if properly implemented.
- We can also support the development of better international agreements. Development of international law, establishing norms and common standards, requires agreement between many states. The Arctic states and the EU can coordinate their views and initiatives better
- Making changes to EU's own policies – most typically we think of climate policy and the policies affecting use of chemicals, like REACH and regulations on the use of pesticides. But the NCM mapping of EU policies relevant for the Arctic that has been delivered to this meeting reveals a large number of other policy areas as well.
- Collaboration on exchange of information and sharing of experience. There are a whole range of areas where we can collaborate. I have already mentioned research, monitoring and assessments, but we could also share experience and information about how environmental policies and instruments work. Examples here are the use of Environmental Impact Assessments and Strategic Environmental Assessments – or how about adaptation strategies[7]. There are also examples of concrete economic and technical cooperation from the EU (like the dismantling of old Soviet submarines) which could be multiplied to other areas like obsolete chemicals.

[4] SEIS – see http://www.eea.europa.eu/about-us/what/shared-environmental-information-system

[5] GMES – see http://www.gmes.info/157.0.html GMES will be the main European contribution to the integrated Global Earth Observation System of Systems (GEOSS), see http://www.epa.gov/geoss/

[7] See for example the proposed Arctic network for CC adaptation: "Vulnerability and Adaptation to Climate Change in the Arctic" (VACCA) http://portal.sdwg.org/content.php?doc=62&xwm=true

Given Europe's wide experience at EU and national levels responding to environmental challenges and developing policy and cooperation to promote concrete actions, there is a high potential for increasing collaboration between EU/European states and the Arctic in relevant areas. The forthcoming communication on the Arctic from the European Commission is an important opportunity to develop a policy framework for such actions and we at the EEA look forward to doing our part contributing to collaboration with the north.

Panel 2: Marine Living Resources

The Panel was asked to focus on the following issues:

Effects of current policies on the protection and sustainable use of fish stocks and other marine living resources, such as seals and whales. The adequacy of regional and global conventions on fisheries management and biodiversity. Effects of management regimes, trade and fisheries policies. Implications of climate change for future policies on sustainable management of living marine resources. Pollution from persistent organic pollutants and heavy metals in Arctic waters. Bioprospecting (commercial use of genetic biological material).

Introduction:	*Ms Diana Wallis*, Vice President, European Parliament
Moderator:	*Ms Annika Ström Melin*, Journalist
Panellists:	*Mr Poul Degnbol*, Scientific Advisor, DG Fisheries and Maritime Affairs, EU Commission
	Mr Aqqaluk Lynge, President, Inuit Circumpolar Council (ICC), Greenland
	Professor Jacqueline McGlade, Executive Director, European Environment Agency (EEA)
	Mr Jóhann Sigurjónsson, Director General, Marine Research Institute, Iceland

Introduction – Marine Living Resources

Ms Diana Wallis MEP
Vice President, European Parliament

Check against delivery

We now move from the terrestrial to marine living resources. However what has become clear from the previous panel is the vast amount of information and science that now confronts policy makers in an era of climate change and, above all, the speed of the present change. Management of such resources at local, regional, European and international level can be difficult at the best of times, but confronted with the current rate of change the challenges likewise are of a greater magnitude.

Last evening, during our boat trip amongst the icebergs, some of us were speaking of what happened in Newfoundland: the total exhaustion of fishing grounds and the resultant devastation of a population dependent on the living resource. In a sense my own home city's story is somewhat similar, and perhaps this may explain to some of you why an Englishwoman should have an interest in the Arctic.

My home town, the port of Hull, is on the North Sea coast. It used to be a thriving fishing port, but nowadays you will not find one fishing vessel in the docks and the only fish that arrives is on the so-called 'fish plane' to our local airport from Reykjavik, Iceland. We process fish – we no longer catch it. All this change in a couple of generations. Then further back at the end of the nineteenth century the whole of my home city was lit by whale oil, and it gives me no pleasure to say that many of the first whalers to this part of the world came from Hull. They developed a city economy that depended on whaling and, of course, helped deplete resources up here, possibly also contributing to the dreadful 'rape of Spitzbergen.

So part of the problem we face is recognising the pace of change and helping our communities to make the changes they must accept to deal with this; changes that can be radical for whole generations. Arguably, as politicians, as decisions makers, we almost have too much information. It is how to translate that information into policies where we can bring peoples and communities with us.

As a Vice President of Parliament one part of the job is often chairing our debates at all sorts of hours. I have to say the fishery debates always seem to be last thing at night! However, there is nothing like a discussion over such resources to bring out all the difficulties and protective tendencies of the best of friends in our European community.

So that is what I want to hear from this panel – not only about the rate of climate change and the science, but how we translate that into decisions and policies that will work for our communities and to find accep-

tance by them at all levels, bringing people with us in the challenges we now face.

Thank you

Arctic Marine Ecosystems and Marine Living Resources Management

Mr Poul Degnbol,
Scientific Adviser,
DG Fisheries and Maritime Affairs, EU Commission

The Arctic environment is fragile and sensitive to human intervention. This also applies to the marine ecosystems and the harvest of living marine resources in these ecosystems. Sustainable utilisation of living marine resources must therefore be precautionary and based on an ecosystem approach, requiring action to be taken to maintain healthy marine ecosystems generally and to utilise living marine resources well within sustainable limits.

Climate change will add an extra stress on arctic marine ecosystems, on top of other human impacts. Beyond loss of habitat and forage bases, marine animals may be facing increased pollution impacts, increased competition with temperate species and impacts due to increased human traffic and development in previously inaccessible areas (ACIA 2004[6]). Harvest of marine living resources will be affected by changes in distribution of resources, opening of access to fishing vessels as large ocean areas become accessible and possibly fundamental changes in the productivity and species composition of harvestable resources if climate change trigger regime shifts similar to what has been seen in the past in some Arctic and subarctic seas. While it may be possible for the larger society and mobile industrialised fishing fleets to adapt to some of these changes, the implications for local communities may be profound. This is especially the case for those indigenous communities which have discontinued former practices to move with the resources and adapted a lifestyle with permanent settlements (ACIA 2004).

The policy response to the combination of sensitive ecosystems and important changes must include the following elements:

- First and foremost, living resource exploitation rely on healthy marine ecosystems which are resilient to stresses such as climate change. The

[6] Arctic Climate Impact Assessment, Impact of a warming arctic. Cambridge University Press 2004

first priority is therefore to maintain healthy and resilient marine ecosystems in the Arctic.

- To achieve this, marine activities of all sectors should be managed within an integrated approach which considers the cumulative human impacts. If all sectors believe they individually can exploit the full capacity of the ecosystem to absorb impacts, the result will be a disrupted marine ecosystem which can no longer deliver ecosystem services such as harvestable living resources, biodiversity and a healthy living environment. Management of human activities in the Arctic should therefore consider all human activities in concert in an integrated framework for maritime management, especially in relation to spatial planning of activities, environmental policies and data and research. The Commission makes reference to the Maritime Policy and its environmental pillar, the Marine Strategy, as an example.
- Specific instruments, such as those decided and implemented through regional fisheries management organisations, will be needed to regulate the activities of specific economic sectors in support of such a framework.
- The sensitivity of Arctic ecosystems and the need to consider cumulative impacts imply that a precautionary, ecosystem based approach must be implemented to management of maritime activities including natural resource management. Management of natural resource exploitation must be adaptive because future changes cannot be predicted with large certainty. Management must also be responsible and responsive in order to be able to take timely action when changes take place to prevent overexploitation to occur when the productivity of resources changes.
- New fishing opportunities will emerge, either through new distribution patterns of fish stocks or by opening up of access to sea areas which were inaccessible before When such new fishing opportunities emerge there is a risk of non-regulated fisheries to develop as we have seen so many times in the past in other areas of the world where new unregulated fisheries developed as fishing fleets developed the technological means to exploit resources which formerly were out of reach. Instruments must be put in place prior to the availability of new fishing opportunities, which effectively prevent IUU fisheries to develop when such new fishing opportunities arise.
- Mechanisms must also be established which can provide for a regulated distribution of access to new fishing opportunities, respecting the interests of indigenous populations. Changing distribution of fish stocks may challenge existing keys for distribution of access to fishing. Commission takes the view that principles for rules for access should be discussed prior to such changes.

The institutional framework for implementation does not need to be developed from scratch. On the contrary, due to the urgency of the matter one should investigate all options for utilising existing frameworks and agreements rather than reinventing the wheel. A regulatory vacuum regarding marine living resources management arises because for some of the Arctic high seas areas there is not yet an international conservation and management regime in place. But there is a regional fisheries management organisation in place (North East Atlantic Fisheries Commission) which already includes part of the Arctic area and has all countries with areas in the Arctic but one (the USA) as Contracting Parties or Co-operating non-contracting parties. Commission therefore takes the view that no new RFMO is needed and NEAFC could be developed to extend its geographic coverage and membership in order to cover Arctic fish stocks within the Arctic Ocean.

Sustainable Use of Marine Living Resources

Mr Aqqaluk Lynge,
President,
Inuit Circumpolar Council (ICC) of Greenland

I am here today as a representative of Arctic peoples who have relied on "marine living resources" for thousands of years. While Inuit increasingly live in towns and villages, most are directly or indirectly linked to marine resource management, and all remain very dependent on the marine environment. I am here too as a representative of the Inuit Circumpolar Council, a human rights and environmental organization that has always tried to address "common concerns" for the Arctic with others who share these concerns. In order to celebrate and promote the unity of Inuit across the Arctic – from Russia to Alaska to Canada, to Greenland – and to address environmental concerns collectively, ICC was founded almost 30 years ago. At the heart of ICC's raison-d'etre is a concern for the sustainable utilization of marine living resources.

Inuit address many of these common concerns internationally within organizations such as the IUCN, the Convention on Biological Diversity, the Arctic Council, and the UN Permanent Forum on Indigenous Issues. One of the most important issues has to do with the conservation and sustainable use of seals. The European Union proposal to impose a total import ban on most seal products has had a direct and negative impact on Inuit. While the EU maintains that an exemption would be given to Inuit who hunt seals in a traditional way and to sealers who do not practise "cruel hunting methods," ICC maintains that the EU's ban will hurt the small and sustainable, community-based market developed by Inuit across the Arctic. Exemptions for Inuit have not worked before, and

ICC's position is that exemptions will not work this time around either. Severe stress on Inuit communities will be felt. ICC calls for the EU to enter into open and honest dialogue with Inuit so that the ban on seal products, which seems inevitable, does not affect the sustainable use of seals among Inuit. While ICC sees this ban as a violation of the World Trade Organization's rules, it nevertheless wants to work with the EU on reexamining the intent of this import ban.

Another very important common concern marine living resources is the sustainable management of polar bears. ICC has worked hard to defend the right of Inuit to hunt any marine animal in a sustainable manner. Polar bear hunting has been an important nutritional, cultural, economic and spiritual practice for many Inuit for thousands of years. Given its goal of pursuing all important issues of "common concern" in cooperation with other interested parties, ICC regretted the United States' recent decision to act unilaterally in naming the polar bear "threatened throughout its range." It is the position of ICC that this decision was not based upon the principles of sustainability and wise conservation but rather resulted from the pressure tactics of various animal rights groups and closely related environmental groups that use the polar bear as an icon in seeking media space for various issues such as climate change. The decision was not based upon a "common concern" for the Arctic, but rather a "unilateral concern". We agree the shrinking ice has an effect on all of our living resources, including the polar bear, believe me we do. But we had hoped that the USA would have used existing international instruments in which Inuit have a strong participatory role, to address this. The USA decision has significant ramifications for Inuit, and ICC calls upon the EU and all Nordic countries to denounce such unilateral action, to support and promote the principle of sustainability, and to promote international tools that have been developed from a "common concern", rather than a "unilateral" one.

A third area of importance for Inuit has to do with the animal rights movement. Inuit have for decades felt that one of their greatest challenges is to find a way to address the varied components of the so-called animal rights movement. Groups within this movement distort truths and realities. For the most part, they are extremely well-funded and well-organized, and they do severe damage to Inuit. We call upon the Nordic Council of Ministers and the EU to work together with ICC to address the challenge of how to address these groups.

Thank you.

Marine Living Resources and Climate Change: Implications for Future Environmental Policies

Professor Jacqueline McGlade ,
Executive Director,
European Environment Agency7 (EEA)

Rapid climate changes in the Arctic marine environment

The Arctic Ocean is the smallest of the world's five oceans[8]. Yet it is a microcosm of the issues facing humans and ecosystems today when considering the impacts of climate change on sustainable management of natural marine resources.

Simulations, models and observations show us that the last 10,000 years have been a time of unprecedented stability for human development. Both the Arctic and Antarctic Oceans played an important role in modulating the temperature and chemistry of the seas. But now with the rapid increase in emissions of greenhouse gases, especially carbon dioxide and methane, the stability of the climate and the health of the world's oceans are under threat.

The most recent reports from the Arctic Council and key projects underway in the International Polar Year[9], show that the planetary shifts we are witnessing in the Arctic are equal to those of the last 123,000 years but occurring at an unprecedented rate. The overall loss of glacial ice from Ilulissat alone in 2005 was 46 cubic kilometres and from the whole of Greenland between 120 and 110 cubic kilometres. This means that Greenland's melting ice is contributing 0.26 mm i.e.15% to the current global sea-level rise of 1.7mm per year.

Satellite observations from 1979 to 2004 have also shown that about 6 to 7.5 million square kilometres of the Arctic were usually covered with summer sea ice, but that in 2006–7 there has been less than 4.5 million square kilometres. The unanswered question is whether the sequence of two extreme years presents a transition towards a new regime of Arctic sea ice, making the return to former states of sea ice cover unlikely. The key factor is ice thickness. If mean thickness falls below a certain threshold value, the main part of sea ice will melt and vast ice-free areas will emerge each summer. The problem is we do not have an ongoing observation programme to measure ice thickness.

A regime shift in the Arctic to a place of net warming would be expected to change the absorption of carbon dioxide and acidity of the oceans. Early evidence is that marine plankton are already losing the

[7] European Environment Agency - see http://www.eea.europa.eu

[8] It is 14 million square kilometres and includes Baffin Bay, Barents Sea, Beaufort Sea, Chuckchi Sea, East Siberian Sea, Greenland Sea, Hudson Bay, Kara Sea, Laptev Sea. The maritime Arctic (200nm EEZ) includes Canada, Greenland, Iceland, Norway, Russia and USA.

[9] International Polar Year 2007-2008 http://www.ipy.org/

integrity of their exoskeletons because of changes in pH. More worrying than the loss of any species is the impact that these changes will have on the ability of the Arctic marine ecosystem to sequester carbon.

In this session we will hear from fisheries managers and legislators; we will also hear about the concerns of the Inuit peoples and their needs and rights to hunt polar bears, seals, belugas, narwhals and walruses. The evidence of population abundance sometimes differs from hunters, who are embedded in the natural systems they are exploiting, to scientists with their more statistical sampling methods. The "truth" is hard to find, the burden of evidence remains confused and the differences inevitably cause conflict.

However, the dramatic changes envisaged in the Arctic marine environment, mean that our resource management will need to be built upon all forms of evidence whether gathered from scientific experiments, monitoring and observing programmes, or local and indigenous knowledge. It will all be relevant.

Policy and institutional changes

The past decade has seen a number of pressing environmental issues emerge in the Arctic. The bio-accumulation of persistent organic pesticides and heavy metals in marine fishes and mammals and their take-up of these by the human population[10], the need for more environmental protection over waste disposal, and the need to avoid over-exploitation of some key fisheries resources[11]. Many institutions and organisations across the geo-political spectrum have grown up to deal with these problems. To date they remain un-coordinated.

If we are to protect and use sustainably the coastal and marine resources of the Arctic, clear rules will need to be established, including agreements on who is going to benefit and who is to take responsibility for various environmental and social impacts. For example if maritime transport is to open up, traffic zones will need to be agreed, if oil and gas agreements are made, operating conditions will have to be established, if fisheries are to expand we should not simply assume that the existing institutions are capable of conserving and managing them, but rather insist on an ecosystems approach and so on. Such agreements are likely to take years to establish.

The coastal states and the EU, are signatories to a large number of multilateral environmental agreements, conventions and legislation that provide a framework on which to build. The European Commission will

[10] Arctic environment: European perspectives. Why should Europe care? EEA –UNEP Joint Report EEA Environmental Issue 38/2003
http://reports.eea.europa.eu/environmental_issue_report_2004_38/en

[11] For the most recent example see Collapse of the fishery for Iceland scallop (*Chlamys islandica*) in Breidafjordur, West Iceland. Jonasson, J. P., Thorarinsdottir, G., Eiriksson, H., Solmundsson, J., and Marteinsdottir, G. 2007. ICES Journal of Marine Science, 64: 298–308. Moderate warming should improve recruitment of cod, herring and Pollock, but some cold water species, such as king crab have shown a recent decline that may be due to ocean warming.

speak in this session on its policies relating the Arctic, the Northern Dimension, and its the Maritime and Marine strategies. Making these all work together and enforcing them is the challenge we now need to address.

To manage the Arctic's rich marine resources we must first recognise that there is a general lack of regular monitoring, observations and assessment programmes. Even for the critical measurement of sea ice cover, there are a very limited number of *in situ* measurements of ice thickness to validate the satellite data and forecast the rate of sea ice loss. Beyond commercial fisheries, there are few independent observations on how the marine ecosystem is responding to changes in ocean circulation and biochemistry.

The infrastructure to maintain a near-real time observing capability for the Arctic region and especially the ocean and marine resources is not in place. Some elements exist and are part of the International Polar Year, for example Sustaining Arctic Observing Networks[12]. There are also a number of national research activities, numerous explorations and expeditions, some existing and planned satellite systems such as GRACE and CryoSat2[13] and a range of sectoral arrangements under different international conventions such as the activities of OSPAR Commission[14] and the UN Convention on the Law of the Sea. But as yet there is no agreement on a consistent, agreed set of observing stations and data flows to inform all those living or working in the Arctic about what is happening in the environment over what time and space scale.

I doubt any successful or long-surviving institution or organisation would take the risk of trying to manage such a large and dangerous set of operations, as working in the Arctic requires, with so little information.

Going forward

A positive step towards addressing the management of the Arctic's marine resources would be to reinforce SAON by building up a legally recognised, coherent network amongst all relevant national bodies, organisations, institutions and social groups for environmental monitoring and observation. Such as network could be tasked with reporting on the state of the marine environment but more critically to openly share data and information with the global community.

The EEA-Eionet[15] is an example of such a network; it exists to support the EEA and its 32 member countries in collecting and sharing information and data and to collectively report on the state of the environ-

[12] SAON - see http://www.arcticobserving.org/

[13] European Space Agency CryoSat2 http://www.esa.int/esaLP/LPcryosat.html and University of Texas GRACE gravity recovery and climate experiment http://www.csr.utexas.edu/grace/

[14] 1992 Oslo and Paris Convention covered by the OSPAR Commission http://www.ospar.org/eng/html/welcome.html and

[15] European Environment Information and Observation Network – see http://eionet.europa.eu/

ment. It includes members from national ministries, agencies, research centres and civil society.

Eionet is extending its way of working with many other partners across the social and economic spectrum, to make information more widely accessible to the general public. Some of these ideas have been discussed here in Ilulissat. They include a range of activities connecting earth observations to in situ environmental data collection, information sharing for a wide range of legal compliance and non-compliance, social and economic purposes and the development of core public services[16]. The EEA-Eionet is also directly linked to the environmental monitoring and observation programmes in the countries surrounding the Arctic via the EU Kopernikus[17] and Neighbourhood Programmes.

Such an institutional arrangement as exists in Eionet would create a form of soft-governance, enabling every politician and administrator to gain access to the most up-to date information on the Arctic's marine environment. This would not only improve our ability to adapt to climate change but would also help retain a sense of co-operation in working towards the common goals of protecting and maintaining the health of the Arctic Ocean.

Marine Living Resources of the Arctic: Some Future Perspectives

Mr Jóhann Sigurjónsson,
Director General,
Marine Research Institute, Iceland

The northern sea (Greenland-Iceland waters and the Barents Sea) are inhabited by large marine mammal and fish stocks which have been exploited and managed at a large scale by local communities and internationally the last 50–100 years, and on a smaller scale for centuries by peoples of the north.

During the last century or so one has experienced substantial periodical climatic changes in northern countries that have generated major shifts in distribution and abundance of many of our most important fish stocks, such as herring, blue whiting and mackerel stocks in the North

[16] These include as legal instruments and communications INSPIRE – see http://www.inspire-geoportal.eu/; SEIS – see http://www.eea.europa.eu/about-us/what/shared-environmental-information-system ; and the Nordic national mapping agencies planned Arctic Spatial Data Infrastructure as en extension of the Geographic Information Technology within the Barents Region http://www.gitbarents.com

[17] Kopernikus (previously GMES – see http://www.gmes.info/157.0.html) will be the main European contribution to the integrated Global Earth Observation System of Systems (GEOSS), see http://www.epa.gov/geoss/ ; the EEA is co-ordinating the in situ data and observations for the Kopernikus core services to be developed in land use, air quality, marine forecasting and emergencies and disaster prevention.

Altlantic that are linked to warm oceanic climate and capelin stocks that are linked to colder conditions.These stocks have undergone dramatic changes in size and distribution due to ocean climate variability the last century. It is clear that the now predicted changes of ice conditions and oceanography in the arctic will generate dramatic changes in the distribution and productivity of fish and marine mammal populations. What changes are likely to take place is, however, unknown. One may envisage some stocks that occur in boreal areas will move or expand to the north, they may increase or decrease in size, depending on stocks and dynamics of the system that will evolve.

The new high seas areas that will be accessible for future marine living resources are enormous in geographic range and constitute greater challenge for the scientific community to try to understand and predict than northern nations have faced. Because of the scale of research activities that are needed to answer fundamental questions on the likely developments, it is essential that the focus is set on providing the necessary knowledge and that nations join forces in coordinated research and monitoring activities. This is in fact the basis for any responsible management actions to be taken in coming years under such changed conditions. Stock sizes, migration patterns and productivity of the evolving stocks that will be subject to future harvest need to be known and the countries involved need regard these mobile resources as a common responsibility in the long-term.

Much has been learned about management of these resources, but still we have examples of poorly managed fish stocks in northern waters, such as the Greenland halibut stock and red fish stocks. The failure to manage the Greenland halibut stock has lead to seriously depleted fish stock that will take many years to recover. Here international management has simply failed to secure sustainable harvest regimes despite sufficient biological knowledge base and organisational framework. This must be a lesson to take into the future when dramatic changes in marine life are taking place and new challenges will appear.

Whatever will exactly be the development of the living marine resources of the high north in coming years and decades, it is clear that substantial changes will take place and they will beyond doubt influence the future agenda of international management regimes. New stocks will appear in new areas and other stocks will decline. Already today climatic changes are providing examples of new management challenges, such as major displacements of capelin and mackerel stocks in the northeastern North Atlantic. It is important that international management authorities try to avoid disputes on management and utilisation of these resources under new environmental conditions to secure sustainability of these resources.

Currently, international fisheries agreements rely on the UNCLOS of 1982 and its 1995 Straddling Stock Agreement. However, no single rule

applies as to how states are to share fishing rights and how this is to be written into multilateral agreements, although parties are obliged to seek solutions to safeguard the sustainability of the resource. While, the parameters currently used to develop agreements are such factors as catch history (total catch by nations through a given period of time), catch distribution by states within national EEZs, zonal attachment (i.e. distribution of each year-class in numbers and/or weight by EEZs throughout the lifespan of the resource in question), nation's contribution to research with respect to the resource and the state's dependence on the fishing operation in question. Here strengthening methodologies and tools are needed for sharing changing resources, including more standardised parameters, that are more transparent and to a greater extent binding to the countries involved than at present.

Panel 3: Non-Renewable Resources – New opportunities and Concerns

The Panel was asked to focus on the following issues:

Challenges and opportunities due to effects of climate change. Expanded exploitation of non-living resources, e.g. oil, gas and minerals. New maritime transportation routes. Increased commercial shipping. Need for improved regulation to enhance maritime safety and environmental protection at sea. Effects of increasing tourism on the environment, local development and traditional living conditions. Policies to reduce risk and prevent physical damage to infrastructure and environmental disasters on land. Emergency and rescue capabilities. Best practices, improved methods and new technologies.

Introduction:	*Ms Heidi Grande Røys,* Norway's Minister for Nordic Co-operation
Moderator:	*Ms Annika Ström Melin,* Journalist
Panellists:	*Ms Mette Karine Gravdahl Agerup,* Assistant Director General, Ministry of Petroleum and Energy, Norway
	Mr Claude Rouam, Head of Unit for Enlargement and Neighbouring Countries, DG ENV, EU Commission
	Dr Martin Sommerkorn, Senior Climate Change Advisor, World Wide Fund for Nature (WWF)
	Mr Dimitrios Theologitis, Head of Unit, Maritime Transport, DG TREN, EU Commission
	Mr Joseph Westwood-Booth, Head of Marine Technology Section, International Maritime Organization (IMO)

Introduction – Non-Renewable Resources – New opportunities and Concerns

Ms Heidi Grande Røys,
Norway's Minister for Nordic Co-operation

Check against delivery

Protecting the arctic environment

Excellences, ladies and gentlemen, friends;
It's a great pleasure to see so many highly comptent participants this conference. I very much enjoyed yesterday's interventions.

The sea ice in the Arctic is melting – rapidly – while we're sitting here. There are reasons to be concerned.

The melting of the sea ice and the Greenland ice-cap will lead to increased shipping and other activity, in waters that may seasonally be navigable but affected by dangerous drift ice. This is posing serious hazards.

We need a legal framework and we need policies. We will not be able to address future environmental challenges without *a rule-based response* and without *concerted, effective action* that builds on *the best available scientific data* and a *responsible and precautionary approach.* This is the basis of the Norwegian Government's policies.

- There have been questions about the legal framework for the Arctic. Do we lack a legal order for the Arctic Ocean?
- My answer is very clear: No. We have the overall framework – what I would call the rules of the game. In short: we are talking about the United Nations Convention on the Law of the Sea. This is the comprehensive multilateral regime that applies for the Arctic Ocean.
- In our view, today's challenges may have more to do with a *lack of implementation* of existing rules, rather than *lack of rules.*
- Does the Law of the Sea Convention contain rules on ice-covered waters? Yes, it does. Have they been implemented nationally? Only to a very limited extent.
- Does the Convention allows for the adoption by the IMO of maritime routes in difficult or vulnerable waters? Yes, it does. When the need arises, this is something we should discuss with all our partners in the IMO. The legal framework is already there.
- Does the Convention allow coastal states to adopt *non-discriminatory* measures, including the establishment of protected areas, within economic zones for various purposes? Yes, it does.
- Does this Convention, and other international agreements, contain rules designed to promote scientific research, environmental protect-

tion and other measures relevant to the Arctic Ocean? Yes, they do. Have these been fully implemented? Not really.

- We need a fresh look at how we can ensure full implementation of existing instruments and fill a good legal framework with political content. This is the real focus of my Government. We need *wise, sound and sustainable policies* for this highly vulnerable region.
- Climate change and environmental issues are on the top of the agenda in the Nordic Council of Ministers. A number of issues have to be addressed in international fora and through close cooperation with other key partners. These include in particular the members and observers of the Arctic Council and the European Union. We also need cooperation in a number of other fora, including the IMO as already mentioned.
- The Arctic Council is a key forum for discussion and formulation of Arctic policies in several areas.
- Increased economic activities will result in increased maritime transportation in the High North. We must therefore strengthen maritime safety measures and oil spill prevention, preparedness and control. Several Arctic Council projects adresses these issues.
- We have a responsibility for protecting the environment. Let us work together and do that by implementing existing agreements and instruments. I see many challenges and opportunities due to effects of climate change, and I look forward to listening to the panel – let's welcome them!

Thank you

Norway: Oil and gas resources in the Arctic

Ms Mette Karine Gravdahl Agerup,
Assistant Director General,
Ministry of Petroleum and Energy, Norway

According to the IEA, the global energy demand will increase by 53 % within 2030. This is mainly due to increased demand in the developing countries in general, and in China and India in particular. 83 % of the increase in demand will be met by fossil ffuels. This implies that oil and gas will continue to have the same relative importance in the energy mix in the years to come as they have today

Our challenge:

- How to meet the growing energy needs without contributing to global climate change and pollution of the marine environment? This question is even more important in the Arctic than other places in the world, as the nature is more fragile.

- How to deal with the intensified global focus on security of energy supply. For instance, every EU country including Great Britain, is today in the situation that they are net importers of oil and gas. The EU is importing more than 50 % of its present energy needs, a figure that is estimated to increase to 70 % by 2030. And like other regions, this increase is mainly due to a steadily rising need to import oil and gas.

Norway has been a very stable and secure supplier of oil and gas to the EU for more than thirty years. Today, Norwegian gas exports meet approximately 15 percent of the European gas consumption. This will continue for many years to come.

In an era of high energy prices, advanced offshore technologies and growing concerns about energy security, there is optimism about the petroleum resource potential of the Arctic.

Some of this optimism is based on rather uncertain estimates by the U.S. Geological Survey suggesting that the Arctic may hold up to a quarter of the world's remaining hydrocarbons. A lot of these resources could be located offshore on, among others, the Norwegian Continental Shelf.

To briefly place Norway in this energy picture, our petroleum activities – all offshore – started in 1965 in the southern – and easiest in terms of access – part of the Continental Shelf. The worldwide search for greater diversity of energy supply extends to the petroleum resources of the Norwegian Continental Shelf. Thus, the Norwegian energy chapter is now moving into the high North, beyond the Arctic Circle into the Barents Sea. However, although exploration and even production have started both in the Norwegian Sea and the Norwegian part of the Barents Sea, parts of the Barents Sea and the Norwegian Sea are still not formally opened to petroleum activities.

We estimate that around 17 % of our oil and gas reserves are located in the Barents Sea.

In this area, energy security has re-emerged as a major issue of international politics.

This also why, on 1 December 2006 the Norwegian Government presented its strategy for the high North. The key external drivers for this policy are: Energy, climate change and Russia. On this basis, key words of our policy for the North are *presence, activities and knowledge.*

Meeting the challenges and opportunities of the high north is a main priority. The main issues are: Sustainable use of renewable and non-renewable resources, climate change and environmental protection. It all amounts to securing safe and healthy living conditions for people in the region, based on sound economic activities. We will develop the petroleum reserves in the high North, while at the same time working actively to combat climate change

At present, we see the Barents Sea emerging as a new petroleum region. This year, the first tankers carrying LNG from the Snøhvit gas field headed for the US from our northernmost town of Hammerfest.

Since 1980, 81 exploration wells have been drilled in the Barents Sea – around half of them in the vicinity of the Snøhvit field. Thus, large parts of the Barents Sea are still unexplored.

We have, however, made other discoveries here – most important amongst them is the Goliat oil field.

The nature in the high North is vulnerable. To deal with this environmental challenge, the Norwegian Government in presented its Plan for Integrated Management of the area from Lofoten to the Barents Sea in March 2006. The plan is a pioneering effort to achieve an ecosystem-based management of the ocean areas surrounding Norway.

We have concluded that the Barents Sea environment is in a satisfactory state. The Norwegian Government intends to maintain this satisfactory state also in the future. To obtain this, restrictions have been put on petroleum activities in the management plan area as follows:

- Zero-discharge to sea is a prerequisite for all petroleum activities in the Norwegian part of the Barents Sea
- No petroleum activities will be initiated in coastal areas and in areas of particular importance to fisheries and the environmental. Further away from the coast-line, fewer restrictions are placed on petroleum activities
- No petroleum activities will be initiated outside Lofoten and Vesterålen during the current parliamentary period.

The Management Plan is dynamic and will be revised in 2010.

Until the time of revision, the Government has decided to carry out extensive research and mapping to extend our knowledge about the area, geological and otherwise. This will constitute a sound basis for future petroleum activities in the Barents Sea. Among others, the Petroleum Directorate has carried out a fairly extensive mapping of the areas in the Northern Barents Sea.

We now have a real opportunity to demonstrate how modern and sustainable management methods can be applied to develop the petroleum resources in the North. In this respect a good and continuous cooperation with our Russian neighbours is very important.

Exploitation of the petroleum resources will have to take place in harmony with the environment. We must continuously develop our knowledge of the ecosystem in the North to secure that our decisions are taken on the basis of the best available information. This is possible with the participation of a highly competent industry. Thus, technology is a vital prerequisite in the development of Norwegian petroleum resources. We now see discoveries made years and even decades ago being devel-

oped. This is mostly due to cutting-edge technology enabling development of resources in deep waters with high pressure and geological complexity. New technology also enables increased recovery from existing fields.

Looking into the future, many of the fundamental technological challenges facing the oil and gas industry will be the same in the Arctic as elsewhere. In general, challenges such as the need to reduce cost, increase exploration efficiency, increase recovery, and develop a new generation of sub-sea and down hole production systems are relevant to all geographical areas of existing and future oil and gas activities.

Challenges that are more specific to the Arctic will be the ability to handle geographically related conditions, such as extreme temperature and weather conditions, icing and problems related to ice infested installations. Furthermore, the ability to develop remote resources located at very long distances from existing infrastructure, and the ability to operate in a secure and sustainable manner in highly environmentally sensitive areas are of particular concern in the Arctic.

Increased research and development efforts are needed to meet all of these challenges. These efforts have mainly to be met by industry, but the Government also intends to contribute in accordance with the goals set out in the strategy for the high North.

We are convinced that Northern Norway and the Northern areas in a broader meaning will experience many great achievements in the years to come. The potential and possibilities are there.

Environmental Challenges and the Way Forward

Mr Claude Rouam,
Head of Unit for Enlargement and Neighbouring Countries,
DG ENV, EU Commission

There is a consensus about the vulnerability of the Arctic region and the threats to the environment in this area. Climate change will most probably pave the way for new economic development (oil, gas exploitation, tourism, new shipping routes). Sustainable development means that new economic activities should take place within a framework of reinforced environmental protection.

From an environmental policy viewpoint, three aspects of this problem should be stressed.

First it can be seen in the context of the wider global issue of *adaptation to climate change*, especially as the effects in the Arctic are faster, more dramatic and difficult to manage than in other regions.

Secondly the challenge is to ensure that future economic development in the Arctic is *sustainable*, that it takes full account of environmental and social considerations.

Thirdly economic development in such a harsh and sensitive environment raises many issues of *risk-management.*

A key question is how far existing instruments of environmental governance match up to these challenges and how and where they might be strengthened?

The new economic *opportunities* raise a variety of environmental *concerns*: the impact on ecosystems; preventing pollution by air, water, chemicals; addressing the risk of accidents; and ensuring that the economic development itself has a minimal impact on climate change. We need to look at a range of *possible solutions* including high environmental standards adapted to the sensitivity of the Arctic; ecosystem management; rigorous environmental and strategic impact assessment; effective prevention, preparedness and response to accidents, including clean-up of pollution incidents; and advanced monitoring and research.

The current environmental governance arrangements are a *mosaic of tools and structures* including national legislation, the UN Law of the Sea, multilateral environmental agreements, OSPAR (the Convention for the Protection of the Marine Environment of the North-east Atlantic), MARPOL (International Convention for the Prevention of Pollution from Ships), the recommendations and guidance produced by such bodies as the Arctic Council and the co-operation provided by the Northern Dimension and other frameworks. *Is it sufficient to ensure the sustainability of activities and manage the risks?* In my view it gives only part of the answer to the environmental challenge.

The *environmental governance deficit* can be seen in a number of areas:

- The absence of an overall policy agenda setting process
- Gaps in coverage (eg MARPOL covers ships only, OSPAR covers only the north-east Atlantic, the Espoo Convention deals only with trans-boundary impacts of projects)
- Global instruments were not designed for the special local circumstances of the Arctic
- No process to co-ordinate different tools and initiatives
- Gaps in participation (non-parties to conventions, absent stakeholders)
- Policy response too slow to match pace of environmental change
    - Soft law solutions not sufficient
    - Implementation of existing rules is an issue, but the governance deficit goes beyond that!

It is widely recognised that UNCLOS provides the backbone for governance in terms of the overall political and legal framework[18]. There is no need to reinvent it.

However UNCLOS has limitations:

- It provides and overall 'Constitutional' framework, but it is not – and is not intended to be – an operational instrument
- UNCLOS was conceived before the concept of sustainable development became widespread
- It is global and not tailored to the circumstances of the Arctic
- The review process is complex and slow
- Not all Arctic states are parties

UNCLOS itself implicitly recognises that it is not the complete answer to the environmental challenges of the Arctic by providing for possible additional measures for such seas (for instance, in articles 123[19], 197[20] and 234). *Such additional measures are needed*[21].

What are the *possible options* that we should consider for enhancing environmental governance of the Arctic?

- An UNCLOS implementing agreement for environmental issues?
- A regional sea agreement (on the lines of OSPAR[22])?
- Further development and monitoring of the implementation (enforcement) of multilateral environmental agreements at the global or regional level?
- Strengthen and broaden the role of the Arctic Council?
- Ensure participation by a broader range of stakeholders?

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[18] "We see no need to develop a new comprehensive international legal regime to govern the Arctic Ocean." Ilulissat Declaration, 27–29 May 2008

[19] Article123 on the Cooperation of States bordering enclosed or semi-enclosed seas: "States bordering an enclosed or semi-enclosed sea should cooperate with each other in the exercise of their rights and in the performance of their duties under this Convention. To this end they shall endeavour, directly or through an appropriate regional organization:

(a) to coordinate the management, conservation, exploration and exploitation of the living resources of the sea;

(b) to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment;

(c) to coordinate their scientific research policies and undertake where appropriate joint programmes of scientific research in the area;

(d) to invite, as appropriate, other interested States or international organizations to cooperate with them in furtherance of the provisions of this article."

[20] Article 197 on the Cooperation on a global or regional basis "States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features."

[21] A source of inspiration could be found in the agreement for the implementation of the UNCLOS provisions relating to the Conservation and Management of Fish Stocks (1995)

[22] Source: The European Union and the Arctic. Policies and actions, Nordic Council of Ministers, Copenhagen, 2008, p.108

- More engagement by the EU and use of the tools it has to offer (research, European Environment Agency, funding via e.g. Northern Dimension Environmental Partnership, Barents Euro-Arctic Council, participation in AC)

The challenge is such that "a package of measures" could well be necessary, bearing in mind the emergency of the situation and that "a business as usual" attitude would have dramatic consequences.

Disclaimer: The views expressed in this summary are not necessarily those of the European Commission

Managing the Arctic in Times of Rapid Change

Dr. Martin Sommerkorn,
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The Arctic is more than a place

The Arctic is still one the world's largest most pristine, charismatic, yet also most vulnerable natural regions: 30 million km² (bigger than North America and Russia combined) of enormous marine and terrestrial ecosystems base their functioning on being permanently or seasonally frozen. The Arctic is also a key region for the global supply of natural resources, in particular fossil fuels and fisheries, and it is home to diversity of human cultures with a long history of living off the land. Above all else though, the Arctic is one of the most important areas for keeping the Earth's climate system stable.

Arctic vulnerability is of urgent global relevance

There is one single threat that overarches all other threats to the Arctic: climate change. Already change in the Arctic is far more rapid than predicted and far more rapid than in the rest of the world. Rapid and visible large-scale impacts, such as the accelerating disappearance of sea ice in the summer, threaten the integrity of natural systems on which the region relies, and some of which are also key components of the world's climate system.

It is now scientific consensus that a century of human greenhouse gas emissions have set the arctic sea ice on an irreversible course. Within the next one or two decades sea ice will totally disappear during arctic summers. This will significantly add to reducing the area and stability of the permanently frozen soils and sediments of the surrounding regions that form the basis for human activity. While this will cause increased local infrastructure and transportation problems, it will also significantly accel-

erate global warming by causing the release of methane and carbon dioxide from the vast amounts of carbon stored in arctic permafrost.

The arctic opportunities– threat oxymoron

Rapid climate change alone will in many places stretch Arctic systems to their functional limits. Ironically the same conditions created by the rapid change in climate, particularly the disappearing arctic sea ice, are now opening the arctic gates for increased human economic activities. Exploiting these economic avenues will undoubtedly contribute to adding significantly and in many places fatally to the pressures on arctic systems; in particular those impacts created by expanded oil and gas development, new shipping routes, and growing commercial fishing.

The whole range of new activities will affect more than one spatial scale, from regional to global. This, in turn, widens the arctic stakeholder community and the important questions those local, regional, and global stakeholders must answer are: how can this multi-scale pressure be alleviated to not exceed the limits for arctic systems; and how can the risks be managed given especially the unprecedented rate and magnitude of change?

First and foremost, the primary action has to target the primary pressure on the arctic environment: it is imperative to reduce atmospheric concentrations and emissions of greenhouse gases as fast and radically as feasible. Failure to do so will not only render all other arctic management efforts futile, it will also for all we know today very likely set the world on a course to hit a self-perpetuating series of feedbacks to the Earth's climate system, the first several ones of which are situated in the Arctic.

In consequence, all local activities have not only to be assessed for their regional but also for their global impacts.

The impacts of increased shipping have not only to be gauged for their potential risks to arctic marine and coastal ecosystems, adequately rated for their defining role for many indigenous cultures, but also for their black carbon emissions (soot) and for the effects of their icebreaking activities, as both increase global warming by contributing to ice and snow melting.

Any new arctic oil and gas developments need to be put under scrutiny from the angle of their global impacts. The politics of oil and gas in the Arctic must be the politics of the world's climate, and not the politics of oil.

Production and transport of oil in and through ice-affected waters has to be halted, as no technology currently exists to clean up spills under these conditions. Any such spill would have catastrophic effects on the arctic marine ecosystem, with global implications, as the Barents and Bering Sea fisheries currently make up a quarter of the global white fish supply.

Managing for resilience from within a binding framework

The most useful conceptual framework able to work with such a wide range of factors in a rapidly changing environment is that of 'Managing for Resilience'; increasing the ability of a system to absorb dramatic change without collapse. It is the single most important adaptation strategy available for maintaining the integrity of the vulnerable and globally important arctic natural systems in times of rapid change and multi-scale pressures. Managing for resilience should be made the basis for all ecosystem-based and spatial management in the circumpolar Arctic.

Many of the impacts of change in the Arctic as well as the factors causing them are large-scale, so managing those impacts must occur on the same scale. Current governance mechanisms appear increasingly fragmented with large gaps in jurisdiction, implementation, and notably in effectiveness. Rapidly changing transboundary resources such as fish stocks, and the opening up of new transportation routes underscore the inadequacy of current governance regimes.

What is urgently needed is an international framework: only a new, comprehensive, international governance regime can avoid unplanned and unregulated activities that will otherwise damage the very resources most necessary for a sustainable future in the Arctic, and globally. This regime is needed before natural resource development expands widely. The adoption of a simple framework convention to improve arctic governance would provide a structure for arctic environmental issues through a harmonious, uniform approach, as opposed to the current fragmented regime based on national approaches. Such an Arctic Framework Convention would provide an integrated management basis adequate to cover the Arctic in times of rapid change.

The EU Perspective for Energy and Maritime Transport

Mr Dimitrios Theologitis
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DG TREN, EU Commission

The medium to long-term effects of ice melting in the Arctic Ocean are difficult to foresee in detail or with accuracy, even though everybody seems to agree that the impact that it will have on human activities in that part of the planet will be important. Besides the need to preserve the environment and sensitive ecosystems in the Arctic, transport and energy are among those economic sectors likely to look at the change, in a revised geographic and geo-strategic context, not as much as a threat but more as a challenge and an opportunity. Ensuring and maintaining freedom of navigation and high maritime safety standards are key essential policy goals also for the Arctic, from the transport perspective.

New Alternative Routes for Maritime Transport: NW-passage, North Sea Route

The Arctic ice melting at a higher rate than many earlier estimates is to have a significant impact on maritime transport policy, as Trans-Arctic shipping will increase with the use of routes so far closed or nearly closed. Two main new routes seem to gradually open to all-year traffic in the Arctic: the so-called *Northern Sea Route*, bordering Russia's Siberian coast and allowing to shorten substantially the Europe-Far-East route, and the *North-West Passage* through the north of Canada, connecting East and West coasts of the American continent and Europe with East Pacific. Both potentially new routes offer a third passage way: the North Sea Route in addition (or instead) to the Suez Canal and the Cape of Good Hope in South Africa, the NW passage offering a possibility to by-pass the Panama Canal or the stormy Cape Horn. Shortening these busy trans-oceanic routes would have important relevance in economic terms, with drastic reduction of times (up to ten days from Rotterdam to Yokohama/Tokyo) and total costs of trips, and environmental terms, with lower consumption levels of fuel oil and lower pollution, with/if maritime safety or navigational risks unchanged.

Potential Growth of Transport of Hydrocarbons from Murmansk, Russia

Oil exports in Russia have become increasingly important for the country's economy and the prospects for growth in the future are quite impressive. Originally mainly coming from its Black Sea ports, Russia's growing oil exports have moved more towards the north, in the Baltic Sea (controls and restrictions increased too in the Bosporus and the Straits). In 2006, the estimated 4.2 Million barrels/day of Russian oil exported, 1Mb/d took the way of the Black Sea (from Novorossiysk and other ports), 1.3Mb/d the Baltic (Primorsk), 1.3 Mb/d the Druzhba pipeline to continental Europe and 0.6Mb/d other alternative routes. The future potential of the port of Murmansk in the Arctic region for Russian oil exports is enormous and is foreseen even to “eclipse” all the other routes. First, because it is the only place from Russia's North-Western coastline that is ice-free all the year long and shortens distances (for exports to the US, for instance). Secondly, because of the enormous energy potential in that Russian region and around the Arctic, both inland and offshore, with estimated huge oil and gas reserves unexplored, unexploited and still to be exported to other parts of the world.

The ARCOP Research Project Conclusions on Arctic Navigation

DG TREN co-financed from 2003 to 2006 a three-year project on Economical and Environmentally Safe Arctic Marine Transportation (ARCOP), participated by 21 organisations from five Member States (FI, DE, NL, UK, IT), Russia and Norway. The project results have constituted a basis for the workings of the Arctic Marine Shipping Assessment (2005–

2008) assigned by the Arctic Council. ARCOP project results have proven that oil and gas transportation by the Northern Sea Route is technologically possible and economically feasible. However, the safety issues, including environmental protection, should be further looked into. Oil and gas transport by tankers is estimated to cost cheaper than by pipelines, even though the risk of a shipping accident happening would need to be reduced.

Maritime Security Aspects

After 11 September 2001 the European Union has decided to enhance maritime security by the adoption in 2004 of a Regulation incorporating in the EU law international instruments adopted in the framework of IMO (chapter XI-2 of SOLAS Convention and parts A and B of Code ISPS). This regulation was followed in 2005 by a Directive on the security of ports. There is nothing specific to foresee in the Arctic, from the EU maritime security perspective, apart from the normal application and respect of the law, i.e., the respect of the ISPS Code by all Flag States and Coastal States concerned.

Maritime Safety in the Arctic

Maritime Safety in the Arctic is in general based on the same rules and regulations that regulate maritime activities on a global basis. The area used to be visited only by ships specially designed and manned for trips under the special conditions that ice and low temperatures create. However, in recent years an increased presence by small, medium sized passenger vessels as well as cruise ships have been noticed. A number of accidents and incidents have forced the IMO to take initiatives to strengthen the safety around ship movements in the Arctic and the Antarctic.

New Technological Advances for Ships in Arctic/Ice Navigation

The IMO guidelines for ships operating in Arctic ice-covered waters adopted in 2002 are already up for revision. The IMO Sub-committee on Design and Equipment is undertaking this review through a correspondence group. The Community feels the obligation to be active in the group since the guidelines can increase the safety for EU citizens on ships in the Arctic. One area in particular has to be developed and that is the availability of rescue services and pollution abatement services, i.e. SAR and OPRC.

Since there is no Automatic Identification System (AIS) network in these areas the new Long-Range Identification and Tracking (LRIT) system will be very important tool for maritime surveillance and vessel traffic management.

Special Ship Technical Specifications for Arctic Navigation

In the IMO guidelines there are a few provisions on the construction of ships trading in the Arctic -and for all ships in general-, mostly dealt with by the classification societies. These provisions focus on hull strength and stability. It has to be ensured that all ships trading in the area really fulfil the requirements.

In addition, IMO is now getting involved in setting provisions on the construction through the development of Goal Based Standards. However, it will take some time before this process will address specific requirements for the Arctic.

Radio/Telecommunications in the Arctic, Operational Issues, Galileo

The Artic region is covered by the Global Maritime Distress and Safety System, GMDSS. The system requires that a ship in distress or persons in distress shall be able to alert a land based Maritime Rescue Co-ordination Centre, MRCC. In the Arctic this is done by using the satellite system Inmarsat up to 70º and for the rest by HF radio. The system for receiving Emergency Position Indicating Radio Beacons, EPIRB, Cospas/Sarsat is also covering the region. At present, expansion and some rearrangement of the World-Wide Navigational Warning System (WWNWS) into Arctic waters is being addressed within the IMO.

It is expected that the European satellite navigation system Galileo will be playing an important role in the Arctic, not only for better and safer navigation but in other fields as well. Galileo is a global civil satellite system and its orbits and number of satellites will, in extreme latitudes, offer enhanced coverage and performance to GPS. Galileo will also offer new safety of life (SoL) and search and rescue (SAR) services which GPS does not provide today, and which will be highly beneficial to the aviation and maritime sectors. Galileo will offer vital navigation and positioning infrastructure in an area where little or no alternatives exist. Possible future development of Galileo regional and local elements is expected to further improve navigation infrastructure in the Arctic.

UNCLOS: General Aspects, Right of Innocent Passage, concept of EEZ

As far as maritime transport is concerned, the United Nations Convention on the Law of the Sea ('UNCLOS', Montego Bay, 10 December 1982) provides for freedom of navigation on the high seas (Art. 87 of the Convention) and for the right of innocent passage in the territorial seas (Art.17). Innocent passage means navigating through the territorial sea for the purpose of traversing it or in order to call at a port (Art.18). Passage is innocent so long as *it is not prejudicial to the peace, good order or security of the coastal State* (Art.19).

The exclusive economic zone is an area beyond and adjacent to the territorial sea (Art.55), in which the coastal State has specific rights of exploring and exploiting natural resources according to the Convention

(Art.56). The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines (Art. 57). In the exclusive economic zone, all States enjoy the same full freedom of navigation as in the high seas (Art.58).

IMO: General approach, Proposals and Initiatives, the PSSAs

Under UNCLOS the IMO is i.e. empowered to set safety and environment protection requirements for all international waters. This includes the Arctic waters.

For the protection of the maritime environment the relevant International Convention for the Prevention of Pollution from Ships (MARPOL), as developed and amended by IMO, sets limitations to discharges of pollutants through its Annexes. This addresses discharges of oil (Annex I), noxious liquid substances in bulk (Annex II), harmful substances in packaged form (Annex III), sewage (Annex IV), garbage (Annex V) and air emissions (Annex VI).

Several of these Annexes contain provisions for determining 'Special Areas' with extra limitations for discharges. The Arctic region has been recognized as a 'Special Area' under some of these Annexes, but not all. IMO can also recognize a sea area as a 'Particular Sensitive Sea Area' (PSSA). This facilitates the introduction of 'Associated Protective Measures', not only under MARPOL, such as recognition as a 'Special Area', but also under the International Convention for the Safety of Life at Sea (SOLAS). Under SOLAS e.g. special mandatory routeing and reporting requirements can be introduced. There are already such requirements around the Norwegian North Cape.

Risk of "Proliferation" of Unilateral Regional Laws from Arctic Bordering States

International rules on maritime transport applicable to the Arctic mainly originate from UNCLOS and IMO. However, the eight states with some territory in the Arctic region have developed, or are in the process of developing, national rules based on the international regulatory regimes, sometimes perceived rigid or with demanding rules. In the navigation through its EEZ of 200 nautical miles, Russia charges fees to merchant ships for ice-breaker support and for pilot services in certain areas. Canada has also started being quite active in the region, examining all possibilities and factors for the opening and widening the use of its North-West Passage but also by increasing its military naval presence in the region. Some tension has even appeared with some territorial disputes related to the EEZ between Norway and Russia in the region (around the Spitsbergen/Svalbard islands) that have not yet been cleared or resolved. The question of an effective Arctic governance with some clear international legal framework -and with common or non-unilateral rules accepted and fully respected by all players- increasingly becomes a need,

once the discussions of technical nature seem to be now more in a second row and the political issues have taken the stage. The need to strengthen and reinforce the current rules of international law, such as the Law of the Sea (UNCLOS), for instance, is often referred to and increasingly seen as a need, in order to settle a proper international legal framework that will be able to effectively evaluate and resolve territorial disputes, tensions or disagreements arising in this sensitive strategic region.

Energy Part (included in the general TREN presentation)

The increased accessibility of the presumed enormous hydrocarbon resources in the Arctic region connected with the rapid melting of the polar ice caps in the Arctic is changing the geo-strategic dynamics of the region with potential consequences for international stability and European security interests. The resulting new strategic interests are illustrated by the planting of the Russian flag under the North Pole. There is an increasing need to address the growing debate over territorial claims and access to new trade routes by different countries which challenge Europe's ability to effectively secure its trade and resource interests in the region and may put pressure on its relations with key partners. Developments in the Arctic could contribute to diversification of transportation and hydrocarbon sources, but it has to be stressed that it will not happen in a short term.

The Arctic hydrocarbon reserves

According to some forecasts, approximately 40% of global oil and gas will be produced offshore by 2015. It is expected that, by 2030 to 2040 climate change will melt enough of the polar ice cap to make extraction and transportation of arctic oil and gas possible. The US Geological Survey, Russia and Norway estimate that 25% of the world undiscovered oil and gas could be located under the polar cap. A Wood Mackenzie and Fugro Robertson study estimates the Arctic share of global hydrocarbon potential at 29% of undiscovered gas and 10% of oil. The study estimates about 178 Bboe reserves across five countries, most of those unfound resources being gas (gas constitutes 85% of the discovered resources and 74% of yet-to-find potential). Each region has a large range of uncertainty. The South Kara estimate for example by USGS has a range of 1 to 11 billion barrels of oil. Whatever the true potential of Arctic is, most experts, including Wood Mackenzie and Fugro Robertson, agree that Russia will dominate the production of hydrocarbons because approximately 69% of Arctic reserves belong to Russia. Overall, Wood Mackenzie and Fugro Robertson foresee that Arctic hydrocarbon production may reach 10 million Boed.

Challenges

Only a handful of companies do have the technological expertise and sub-Arctic experience to extract hydrocarbons from the Arctic seabed. The

Norwegian company Statoil Hydro has far advanced experience developing offshore resources and is leader in technologies in extreme climates while taking care of environmental concerns. Some other big companies, such as Exxon, BP and Shell have experience operating projects in extreme northern conditions (e.g. Exxon through Sakhalin I, Prudhoe Bay, etc.). Environmental issues will pose significant challenges. The Arctic includes unique habitats of indigenous cultures, landscapes, fauna, flora and marine life. Recent environment concerns (Sakhalin 2, Alaskan National Wildlife Refuge, etc.) highlight the potential problems companies could face with their Arctic projects.

Energy and UNCLOS

According to the United Nations Convention on the Law of the Sea (UNCLOS), states are entitled to an exclusive economic zone (EEZ) of 320 kilometres (200 nautical miles) beyond their coastline. A coastal state has the exclusive right to exploit all natural resources within its EEZ, including subsoil hydrocarbon resources. If a state can prove to the UN Commission on the Limits of the Continental Shelf that its undersea shelf extends beyond its EEZ, it has the right to exploit that seabed's resources as well. Russia claims that the Arctic Ocean seabed is a projection of the Siberian continental platform. This Lomonosov Ridge is also claimed from Denmark to be part of the continental shelf of Greenland. Norway and Canada have also launched claims that certain Arctic sectors should belong to their territories.

Furthermore Arctic Oil & Gas Corp. (AOAG), an US Company has filed for exclusive exploitation, development, marketing and extraction rights to the oil and gas resources of the Arctic seabed. AOAG and its partners made an international Arctic Commons hydrocarbons claim in 2006 with the United Nations General Assembly and the Countries of Canada, Russia, USA, Norway and Denmark, claiming as a responsible oil and gas development agent of the common heritage of mankind. They also push the US government not to ratify the Sea Law Convention, although the Bush government is in favour of the ratification.

Fortunately, there are UN structures ruling on these submissions The Third Law of the Sea Conference created a UN body – the Commission on the Limits of the Continental Shelf – whose mandate is to decide the claims concerning the continental shelf. The Commission is made up of independent experts drawn from states which have ratified the 1982 Law of the Sea Convention, but there are currently no US members on the Commission as the USA has not yet ratified the Convention.

IMO and Arctic Ice-Covered Waters

Mr Joseph N. Westwood-Booth,
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International Maritime Organisation (IMO), United Nations

Excellencies, Ministers, distinguished delegates, ladies and gentlemen.
It is a great pleasure to be here today and on behalf of the Secretary-General of the International Maritime Organization (IMO), Mr. Efthimios E. Mitropoulos, I wish to thank the Nordic Council of Ministers and the Government of Sweden for the opportunity to address such an important subject on IMO's current agenda as the protection of Arctic ice-covered waters. My objective here today is to provide information on the latest work being carried out by the IMO on this important matter with a focus on maritime safety and protection of the marine environment.

Maritime Safety

With regard to maritime safety, it is well know that ships operating in the Arctic environment are exposed to a number of unique risks. Poor weather conditions and the relative lack of good navigational charts, communication systems and other navigational aids pose challenges for mariners. The remoteness of the areas makes rescue or clean-up operations difficult and costly and cold temperatures can reduce the effectiveness of numerous components of a ship, ranging from deck machinery to emergency equipment. When ice is present, it can also impose additional loads on the hull as well as the propulsion system and appendages.

Recognizing the need for special safety provisions for ships operating in such a unique environment, the IMO's Maritime Safety Committee (MSC) and Marine Environment Protection Committee (MEPC), in 2002, approved Guidelines for ships operating in Arctic ice-covered waters, as set out in MSC/Circ.1056 – MEPC/Circ.399.

When work on the above Guidelines first started in 1999, the idea had originally been to develop a so-called "Polar Code". However, Member States could not agree on the status of such a Code, with significant resistance to making it mandatory. Nevertheless, after intensive discussion, Members States finally settled on developing non-mandatory guidelines. The non-mandatory Guidelines approved in 2002 address those additional provisions deemed necessary for consideration beyond the existing requirements of the 1974 Safety of Life at Sea (SOLAS) Convention, as amended, in order to take into account the climatic conditions of Arctic waters and to meet appropriate standards for maritime safety and pollution prevention.

After the guidelines were issued, the MSC, in 2004, considered a request by the 27th Antarctic Treaty Consultative Meeting (ATCM) to amend the Guidelines so that they would also be applicable to ships oper-

ating in the Antarctic Treaty Area. In addition to the proposed replacement of the term "Arctic" by "Arctic and Antarctic" in the Guidelines, the ATCM further wished to draw IMO's attention to whether full double bottom construction was necessary for all classes of ships operating in Antarctic ice-covered waters or if there were other ways of ensuring the same standards of ship stability and safe operation. The MSC decided to refer the matter to the IMO Sub-Committee on Design and Equipment (DE) for detailed consideration.

In March 2007, the DE Sub-Committee considered the changes to the Guidelines proposed by the ATCM and agreed that, in addition to the inclusion of provisions relating to operation of ships in the Antarctic region, the Guidelines also needed to be generally updated in order to take into account technical developments since their approval in 2002, especially with regard to damage stability, double bottoms and the carriage of pollutants in spaces adjacent to the outer hull. The DE Sub-Committee has continued working on the amendments to the Guidelines and, in March 2008, established a correspondence group to prepare draft Revised Guidelines for submission to the Sub-Committee's at its next session in March 2009, with a view towards finalization.

In addition to the above, the DE Sub-Committee, at its most recent session in March 2008, noted the views of several delegations that special consideration should also be given to passenger ships that visit Polar regions. The recent accidents involving the passenger ships *Explorer* and *Fram* in Antarctic waters have underlined the importance of extending the Guidelines to also cover these areas as well as highlighting the dangers associated with operating passenger ships in such remote locations. In this regard, the MSC, in November 2006, adopted a comprehensive set of regulations related to passenger ship safety to address a wide range of issues, which included, but was not limited to, improved survivability of passenger ships in the event of casualty and passenger ship operations in areas remote from search and rescue (SAR) facilities.

After the above package of amendments were adopted, the DE Sub-Committee was further instructed to develop performance standards for all types of ships to assist SAR Authorities with recovering people from lifesaving appliances, which is aimed at assisting rescue operations in remote areas as well as dealing with large numbers of survivors. This work is expected to be completed by 2012.

Protection of marine environment

With regard to the protection of the marine environment, the MEPC has taken a number of steps to protect both the Antarctic area and the Arctic Ocean, which has included addressing climate change issues. I would encourage all those interested in such matters to visit the Organization's website (www.imo.org), where you will find a vast array of information on the current safety and environmental issues facing IMO.

Of course, one of the most effective means to protect these unique and vulnerable Polar environments from pollution from ships, is to prevent accidents from happening in the first place As the saying goes – *safety first.*

Nevertheless, there are others steps that can be taken to protect the Polar regions such as designating them as 'Special Areas' under the International Convention for the Prevention of Pollution from Ships (MARPOL), so that more stringent discharge or emissions limits will also apply, which may include mechanisms to protect the marine and atmospheric environments from pollution by ships. The Antarctic area is already one of the eight designated *Special Areas* under the MARPOL Convention. In this *Special Area*, any discharge from ships of oil, noxious liquid substances or garbage is strictly prohibited. However, the Artic areas are not considered as 'Special Areas' under the MARPOL Convention. To designate a sea area as a 'Special Area' under any of the annexes to the MARPOL Convention, a proposal from the involved States is needed and, if accepted by the MEPC, amendments to the relevant annex of MARPOL would be included and usually enter into force 16 months after their adoption.

At its fifty-sixth meeting in 2007, the MEPC considered a Norwegian proposal to ban the carriage of heavy grade oil in the Antarctic area and agreed to refer the matter to the IMO Sub-Committee on Bulk Liquids and Gases (BLG) with a view to their preparing amendments to MARPOL Annex I on the use and carriage of heavy grade oil in the Antarctic area. During the debate, several delegations supported the intent of the Norwegian proposal to give extra protection to the Antarctic area, but a number of delegations also raised some concerns, including whether the ban would apply to all fishing vessels and whether the ban would allow the use of lubricating oil on board ships. All these issues will of course be considered by the BLG Sub-Committee, the final outcome of which will be reported to the MEPC in due course.

However, in addition to the work on the Antarctic area, at the BLG Sub-Committee's last meeting in February 2008, mention was made of the possible extension to the Arctic waters of any restrictive measures adopted to protect the Antarctic area concerning the use and carriage of heavy grade oil. For the moment, however, the BLG Sub-Committee has decided not considered such an extension at this point in time.

Concluding remarks

Ladies and Gentleman, I have only briefly highlighted the main developments related to the Organization's work on this important subject. However, IMO continues working vigorously on matters which have been identified by Member Governments as very important for the enhancement of maritime safety, security and the protection of the environment. I would therefore encourage you all to visit our website (www.imo.org)

where you will find a vast array of information on all the current issues facing IMO.

In concluding, I wish to recall that since IMO was established 60 years ago, globalization has transformed international trade and the myriad of measures established by IMO has provided the bedrock on which a safer and cleaner industry continues to develop and flourish. Moreover, IMO's work has demonstrated beyond doubt that international standards - developed, agreed, implemented and enforced universally - are the most effective way to regulate such a diverse and truly international industry as shipping. I would therefore encourage all those with an interest in maritime affairs to continue seeking internationally agreed solutions through IMO so that they will be recognized and enforced on a global basis.

Thank you.

Acknowledgements

I wish to thank my colleagues from the IMO Maritime Safety Division for their contributions to this paper.

Panel 4 – Local Development – Capacity Building in the Arctic

The Panel was asked to focus on the following issues:

Current local and regional development policies. Migration trends in Arctic regions. The role of education and training to promote capacity building and reduce gender imbalances. The EU-Greenland OCT Agreement, an example of external support for local development policies. Impacts of new information technologies on local culture and traditional values. New economic activities. Policies to retain income from natural resource extraction in Arctic communities. Provision of education, health and social services in remote areas. Policies to promote job opportunities and maintain the viability of traditional livelihoods.

Introduction:	*Mr Bertel Haarder*, Denmark's Minister for Nordic Co-operation
Moderator:	*Ms Annika Ström Melin*, Journalist
Panellists:	*Ms Linn Harkess*, Programme Manager, Europeaid, EU Commission
	Mr Russel Shearer, Director, Northern Science and Contaminants Research Directorate, Indian and Northern Affairs, Canada
	Ms Lida Skifte Lennert, Head of Department, Ministry of Foreign Affairs, Greenland
	Mr Pavel Sulyandziga, First Vice-president, Russian Association of Indigenous Peoples of the North (RAIPON)

Introduction – Local Development – Capacity Building in the Arctic

Mr Bertel Haarder,
Denmark's Minister for Nordic Co-operation

Check against delivery

Ladies and Gentleman,
As minister for Education and for Nordic Cooperation it gives me great pleasure to introduce this segment of the Conference. I had the honour to chair the EU-Arctic Conference in 2002 opening the Arctic window in the EU Northern Dimension.

As we saw yesterday, enormous icebergs are moving though the Ice-fjord. Over the past decades the flow and size of icebergs has increased, just as the flow and size of action and interests from all parties concerned has increased when it comes to the Arctic.

Why are we talking about capacity building and the role of education and training in the Arctic? We do that because all societies need capacity building, and in the Arctic capacity building is an especially challenging task, not least because of the enormity of the lands, the traditions and the life styles in this part of the world.

We all need and want steady economic growth, cultural satisfaction and influence when it comes to shaping our own future. Education and training is one of the most important tools in achieving this goal. Concrete initiatives must centre on raising the general level of education, preventing early dropouts from schools and on developing policies to retain skilled labour. Demands from the modern, industrialised and globalised world must be taken into account. All in all, a daunting task for any society.

Greenland has taken important steps in that direction. The government's strategic target is that by 2020 two thirds of its working population must have obtained a vocational or higher education. Today only one third of Greenland's working population is educated. Greenland receives an annual grant of 25 million euro earmarked for educational purposes.

I am convinced that there are no real frontiers to learning, and that no one knows what he or she can achieve until it has been tried out. Only education – and lots of it – liberate the creative forces in man and thereby secures the foundation for progress. Mind you, education is a never-ending process.

So friends of and in the Arctic – I can only say – education, education and finally more education.

These were my short and general words of introduction. We have in the panel knowledgeable people who will pinpoint the concrete chal-

lenges and ways to alleviate problems. I now give the floor to them, and I look forward to hearing their interventions.

Thank you.

EU – Greenland Partnership

Ms Linn Harkess,
Programme Manager,
Europeaid, European Commission

Since 2007, the EC has provided the Greenland Home Rule Government with financial assistance to the education and vocational training sector. Assistance has been channelled directly to the Greenland Home rule Government in support of the Greenlandic education and vocational training reform programme. By providing sector budget support, the EC is aiming to channel its aid through existing domestic structures and in support of a locally owned strategy in the education sector.

EU- Greenland relations

When leaving the EC in 1985, Greenland became an Overseas Country and Territory (OCT). The relationship with the OCTs is defined in the EC treaty (Art 182) and its main aim is to promote the economic and social development of the countries and territories and to establish close economic relations between them and the Community.

Today the OCTs comprise 21 countries and territories, most of which are isolated island communities with special ties to a Member State (France, the Netherlands, the UK or Denmark). They are however not part of the European Union which differentiates them from the so called "outermost regions" that are part of the EU.

Cooperation with Greenland however is somewhat of a special case as it in addition to the legal framework for relations with the OCTs, is based on a specific joint partnership declaration from 2006 which responds to the specific challenges of Greenland. From the EC's perspective, cooperation with Greenland is important from a geostrategic point of view. Greenland is also seen as an important partner to manage natural resources and fish stocks. The partnership agreement states that the partnership should be twofold, cooperation in the area of fisheries and cooperation in other areas and as such marks a new phase in the cooperation between Greenland and the EC, as support until 2007 has mainly been channelled through a specific fishery agreement. A separate Council de-

cision[23] provides the framework for cooperation in areas other than fisheries and specifies that financial assistance should be provided by means of budget support.

The budget support tool

In the last few years the EC has moved away from the classic project approach towards providing general or sector budget support, where conditions have been suitable. This is in line with the Paris Declaration on aid effectiveness from 2005 which underlines the necessity to increase ownership by the partnership country, align aid with national procedures and improve harmonisation between donors. The European Consensus on development agreed by the European Parliament, the Commission and the Member States in the Council in 2005 also confirmed the intention to provide budget support where possible.

It is significant that budget support uses national structures and procedures for implementation in support of nationally owned policies. The advantages of budget support are considered to be the fact that it increases ownership, accountability and capacity of the partner country. A main difference between budget support and a project approach is that EC funds are channelled directly to the national treasury of the partner country and become part of the national budget. In addition, when granting budget support the EC agrees with the partner country on the results to be achieved leaving it up to the partner to define how to achieve those goals.

By using national systems for management of funds (accounting, procurement, etc.) budget support also intends to decrease the transaction costs for the partner country as they do not have to use parallel structures to meet specific donor's requirements.

Sector budget support to the Greenland education and vocational training sector

The Programming Document for the Sustainable Development of Greenland 2007–2013 indentifies Education and Vocational training sector as the focal area for support during the period 2007–2013 with a financial contribution of € 25 million (at 2006 prices) per year throughout the period.

The reason for choosing education as the sector for cooperation is that education has been singled out by the Greenland Home Rule Government (GHRG) as one of the key areas of reform for the sustainable development of Greenland. The Greenland Education Programme, established in 2006, provides the overall educational reform programme for Greenland until 2020 and is underpinned by a significantly increased budget for education. The overall objective of the Greenland Education Programme

[23] Council Decision 2006/526/EC of 17 July 2006 on relations between the European Community (EC) on the one hand, and Greenland and the Kingdom of Denmark on the other OJ L 208, 29.7.2006, p. 28.

is to achieve a higher standard of living and quality of life through raising the levels of education, technical skills and knowledge. The first phase of the Greenland Education Programme places emphasis on vocational training, the acquisition of qualifications for jobs above unskilled level and competence courses for unskilled persons. In addition, there is special focus on strategic areas that currently lack manpower or where there is a strong development potential: tourism, construction, raw materials, health, social welfare and education. By focusing on these areas the Greenlandic workforce should be better equipped to meet future demands. The overall objective is to increase the education level of the population from 1/3 to 2/3 with professional or academic qualifications by 2020.

By using the budget support modality, the aim is to strengthen the capacity of the stakeholders involved in the implementation of the programme which will increase the long term sustainability of the programme. As an example, in the first year of implementation, considerable efforts have been made to set up a system of performance indicators which has been a very positive example of cooperation between the Agency of Industry, Labour Market and Vocational Training, Greenland Statistics and the Commission. This data will be used as a basis for future policy making and for reporting on performance both to the Greenlandic Parliament and to the EC.

Policy dialogue between the EC and Greenland is a crucial corner stone of this process though it is always important to remember that the Greenland Education Programme is a primarily a policy that has been developed for and by the Greenlanders themselves.

I have just participated in a two day strategy conference in Nuuk with stakeholders from around Greenland and it was very clear that there is a high degree of ownership and commitment to the programme at all levels: political level, within the administration, as well as staff at the schools and study guidance centres carrying out activities in the programme.

To conclude, we have just entered the second year of cooperation and although the programme is still at its initial phase, the results from the first year is already showing some encouraging results, for instance in terms of increased attendance and completion rates at upper secondary level and higher education which will contribute to achieving the ambitious results of the programme.

Canada's Experience: Local Development and Capacity Building

Mr Russel Shearer,
Director, Northern Science and Contaminants Research Directorate,
Indian and Northern Affairs, Canada

This is a complex issue to outline in 5–10 min. I will focus on a few key points and offer a tiny snapshot to Canada's experience on Local/Regional Development and corresponding capacity building which may help to inform this initiative.

With significant changes in the North, the key question is do northerners (people who live in the Arctic region) have the capacity to adapt and fully benefit from these changes including local and regional development. The answer, at least in Canada is no they don't at the moment but there are increasing opportunities. The need for capacity building on almost all levels is one of the most critical issues facing the Arctic today.

Canada announced its integrated Northern Strategy in the Fall 2007 – Speech from the Throne and re-confirmed it in Budget 2008. It provides a common framework and consists of four pillars: Sovereignty and Security, Economic and Social Development, Environmental Protection and Governance. These pillars are challenges to all Arctic Nations but internal factors may be different. Today will focus on pillars 2 and 4.

There are serious social issues in the Arctic that are far below standards in the south. Colliding with these social issues are large-scale resource development which will change the North.

Canada's North has a young, rapidly growing population, highest crime rates in territories, life expectancy is 5–10 yrs shorter than Canadian average and 25% high school graduation rate in Nunavut. At the same time, approximately one third of Canada's hydrocarbon potential remains untapped in the Arctic region and diamonds could generate $5Billion in royalties over next 10–20 yrs.

Under governance, there are two main strategies: transfer of federal responsibilities (devolution) to territorial governments will help realize aspirations of northerners and increase local decision-making; Indigenous Peoples land claims and self-government agreements are well advanced and are important pre-conditions to putting decision-making and capacity building in the hands of northerners. Governance, social development are foundational to real progress on capacity-building. However challenges remain: complex governance and regulatory regimes and human capacity challenges.

Under economic development – local and regional in scale – the Government of Canada understands that major projects such as the Mackenzie Gas Project and northern mines can greatly contribute to sustained economic activity in the Arctic and to building strong and healthy Indige-

nous Peoples and Northern Communities. The MGP's unprecedented size and scope – for example, now estimated at $16B – represents an equally unprecedented opportunity for Northerners to benefit from its development and hence capacity-building through jobs and training.

Canada knows that by providing modern public infrastructure will contribute to a stronger economy, a cleaner environment and prosperous communities and empowerment for the North. Government of Canada recently announced an expanded Broadbent for the North, allowing greater high-speed internet access in remote communities, contributing to local capacity-building.

Under Indigenous Peoples Land Claims, significant resources and effort has been put into these comprehensive agreements. They represent a key to capacity-building and made-in-North decision-making. These land claim agreements give Indigenous peoples authority to manage their own lands and resources. Also included are impact benefit agreements that contribute to local capacity-building.

On the horizon: provide Northerners with more control over their destinies through land claim agreements, devolution of powers from federal to territorial governments and socio-economic and capacity-building programs; labour market/skills development programs that maximize Indigenous Peoples participation in economic activities; investments in major economic and energy development infrastructure projects resulting in benefit agreements with northern communities; and, need to raise standards for health, education and housing in the North to equal southern standards.

Finally, full-scale implementation of Arctic policies and land claim/benefit agreements are critically important to realize capacity-building and net gains for northern communities.

Partnership between the EU and Greenland, from 2007–13

Ms Lida Skifte Lennert,
Head of Department,
Ministry of Foreign Affairs, Greenland

The presentation will focus on the following:

- Historical background
- The withdrawal of the EU
- Legal base for the relationship between Greenland/Denmark and the EU from 2007
- The new Partnership from 2007
- Thoughts about the future agreement

The Partnership between Greenland and the European Union from 2007–2013 consists of two parts – which is the Political Declaration and a Council Decision.

The Political Declaration was signed in Luxembourg on June 27th 2006 and the subsequent Council Decision was taken in Brussels on July 17th 2006.

These two parts along with the Fisheries agreement between Greenland and the European Union which was formally agreed to on June 2nd 2006 forms the future cooperation between Greenland and the European Union. The total amount transferred from the EU to Greenland account for 42, 8 million EUR.

Greenland and the EU have had fisheries agreements renewed by protocols since 1985 where Greenland withdrew from the EU. However a Council Decision from 2003 concluded that a new partnership with cooperation in other areas than the fisheries sector should be agreed to for the period from 2007–2012/13.

The Political Declaration sets the frame for the future cooperation in terms of a fisheries agreement and cooperation in other areas which both Parties will agree to, for example a Veterinary Agreement. The Political Declaration states that Greenland's interest in a broader cooperation is to strengthen the relations between Greenland and the EU so that it contributes to the development of Greenland and form a basis for cooperation. The cooperation will support sector policies within the areas of education, mineral resources, energy, tourism, research and culture. The European Union's interest in future cooperation is based on the interest of the EU to contribute to sustainable development in an Overseas Country and Territory, a geostrategic interest, to cooperate about new Northern Sea routes, the Greenland EEZ, fisheries, maritime environment, climate change and alternative energy sources.

The Council Decision refers to the will to cooperate in the Political Declaration and it implements it as such. Although it is a Council Decision the content of it was done in a dialogue/negotiation between the Commission and the Greenland Home Rule. The Decision makes an annual budget support contribution from the EU to the Greenland Home Rule possible for the amount of 25 million EUR.

The Greenland budget line in the EU budget is separate from the Overseas Countries and Territories Budget which is paid through the European Development Fund. Greenland does not have access to budget support through the European Development Fund. However Greenland does have access to other cooperation measures in the OCT decision, such as regional cooperation and the EU Programmes.

Adjusting the Northern Dimension to the New Challenges of the Arctic and the Indigenous Peoples

Mr Pavel Sulyandziga,
First Vice-President,
Russian Association of Indigenous Peoples of the North (RAIPON)

Dear Friends,
Let me express my gratitude for the opportunity to participate in this very important meeting, and thank NCM, the Governments of Greenland and Denmark, and the inuit, our hosts, for arranging this.

The Arctic is a corner of the peace and stability, and it is very important, that it remain so. It is important that cooperation and mutual understanding in the Arctic region continue.

The political declaration from the Johannesburg Summit on Sustainable Development recognizes the Arctic as a special region of the world, a kind of barometer to measure the environmental status of the Earth. The same declaration characterises the Arctic Council as a model of cooperation between states and indigenous peoples.

The Arctic environment has already been loaded by different types of pollutants, e.g. POPs, brought here from the southern regions. The Arctic will in the immediate future face new challenges caused by the opening of new sea routes and development of mineral and energy resources.

I would like to express my gratitude to the European Union for their support of Declaration on the rights of indigenous peoples, adopted by the General Assembly of the UN on September 13th, 2007. It is unfortunate that Russia, Canada and USA do not support the declaration.

RAIPON very much supports the EUs Northern Dimension. However, this policy, as it effects indigenous peoples, has unfortunately not been fully translated into practice. It is just another piece of paper. The indigenous peoples of the Russian Federation have not been involved in developing the Action Plan to the Northern Dimension. I personally visited twice the European Commission in Brussels to try to include indigenous people's organizations in the process of implementing the 1stAction Plan. Two priorities of the indigenous peoples were listed in the Action Plan: health and the ecological situation in the territories of indigenous peoples. The Northern Dimension was signed by EU, Russia, Norway and Iceland. Let's hope that it will work eventually. At the moment the Northern Dimension is like a sports car – maybe a Ferrari, but with no gas. It's not moving.

As a first step to get the car moving we suggest a Working Group on the indigenous peoples be established within framework of the ND. This is something that, I think, all Arctic indigenous peoples support.

When we speak about the Arctic civilization, we, first of all, think of culture, traditions, the customs, and indigenous traditional knowledge.

And now this civilization is under threat, most obviously of the result of climate change. Therefore, if we want to preserve this civilization, to sustain the development of local communities, it is of great importance to implement the following actions:

- to assist indigenous peoples in adapting to the current changes (and it is not only climate changes in nature, but also social changes connected to the globalization processes and necessity to adapt to the market economy),
- to facilitate increased access to education and quality health care;
- promote development and implementation of a strategy to accelerate growth of the local economy based on traditional livelihoods, tourism and production of processed goods.
- effectively regulate for transnational corporations, industrial companies, financial institutions, whose activity effect the rights and interests of indigenous peoples.

Let me finish by noting that RAIPON is nearly 20 years old. We have matured politically and have much positive experience in partnering with European organizations and governments. I look forward to further developing our relationship.

Panel 5 Arctic Research – Science and Traditional knowledge

The Panel was asked to focus on the following issues:

Policies to enhance the impact of Arctic research, access to data and dissemination of research results. Local participation and the usefulness of scientific research to local communities. Combinations with traditional knowledge. The International Polar Year and other major research activities in the Arctic. Need for enhanced circumpolar coordination and access to polar regions for scientific research. Options for new forms of joint transnational research cooperation. Policies to ensure sustained funding and of expanded long-term observation and monitoring of Arctic change.

Introduction:	*Dr David Carlson,* Director, International Polar Year Programme Office
Moderator:	*Ms Annika Ström Melin,* Journalist
Panellists:	*Dr Paul Egerton,* Executive Director, European Polar Board & European Polar Consortium, European Science Foundation.
	Dr Elisabeth Lipiatou, Head of Unit Climate Change and Environmental Risks, DG Research, EU Commission
	Mr Sven-Roald Nystø, Special Adviser, Árran Lulesami Centre and The Sami Institutions Network on High North Affairs, Norway
	Dr Simon Stephenson, Director, Division of Arctic Sciences, National Science Foundation of the United States of America

Introduction – Arctic Research – Science and Traditional knowledge

Dr David Carlson,
Director,
International Polar Year Programme Office

We have heard many reports of Arctic research during this conference; we may hear more during this Panel. From all these reports we receive a consistent theme - the Arctic changes very fast.

This Panel will discuss the infrastructure of research – the systems and agreements, particularly international, that allow and enable research on global problems. The International Polar Year represents a highly successful example of international research cooperation, but achieving that success has required substantial effort by many people, encountering many difficulties. These difficulties or problems exist for projects like the IPY but also for long term monitoring as we have heard from other panels.

Some of these difficulties or challenges arise from the normal course of research, and relate to issues of planning and funding. Two other issues deserve attention. The simple issue of schedules represents a substantial barrier to international cooperation. Nations have different annual schedules for funding decisions, and make allocations for various amounts of time. Building an international research collaboration when funding decisions occur 6 months apart, and projects get funded for 2 years in some countries and up to 5 years in other countries, represents a surprisingly difficult problem. The other difficulty arises from data policies. IPY has a free and open data policy, but many nations have substantially different policies or lack the means and motivation to enforce any policies. Although all IPY participants have agreed to the data policy, in practice only encouragement and attention from the national programmes can ensure compliance.

IPY occurs at a time of growing community-based monitoring efforts, and has itself stimulated these activities across the Arctic. Based on this success, however, we also discover some of the challenges. From the formal science side, scientists tend to dislike or devalue the community-based efforts because the information does not fit our grid point thinking, does not arrive at a fixed time, and may not have a uniform format. From the community point of view, the observers have legitimate concerns about how to share observations among partners to build a community-wide or regional understanding, about control of who uses the data and for what purposes, and about genuine partnership in the analysis and synthesis of the observations. Web portals, for gathering and sharing the data, have the potential to help both the communities and the scientific users.

In almost every presentation today, we hear and accept the basic premise that research information influences policy. Almost every

speaker assumed that enhanced monitoring or better understanding from process studies will have substantive impact on policy, and most of us do not question that assumption. I contend that often, in fact more often than not, that link does not work. Scientist assumes they have met their obligations by producing, for example, assessments, while policy makers, having funded the assessments, assume they have received and understood the information. I suggest we need to close this gap by inserting another step, a prediction step. A prediction system serves as an effective interface from information providers to information users. Producing a useful prediction entails substantial risk (and requires changes in thinking and funding), but nothing focuses attention on quality and timeliness of research, or on user expectations, like a bad prediction. Prediction systems force us to think operationally, to develop and use assimilation schemes, skill scores and error analyses, and to monitor and meet customer needs. The requirements and discipline of a prediction process will advance communication and impact of polar science like no other product.

Enhancing the Coordination and Integration of European Research Activities in the Arctic Region and Perspectives for International Science Cooperation

Dr Paul Egerton,
Executive Director,
European Polar Board & European Polar Consortium,
European Science Foundation

1. A European Research agenda in the Arctic Region:

The national governmental agencies that compose the European Polar Board have been collectively working on mechanisms to strengthen the interconnection of research priorities and encouraging the coordination-connection of research stations research vessels and environmental observatories. An integrated approach to financing and prioritization of future research themes are required to have the maximum impact and added value to Society.

The European Polar Consortium (EUROPOLAR ERA-NET) www.europolar.org financed under the EC Framework Programme is an initiative managed by the European Polar Board comprising 25 ministries and funding agencies, with the main objectives of identifying and characterizing critical elements for deepening the collaboration between European Polar Research agencies, harmonizing management processes and strengthening European polar coordination in a global context. European countries have a large and sophisticated capacity in the Polar Regions as the governmental agencies operate over 22 Arctic and 25 Antarctic re-

search stations, 31 polar ships and 26 aircraft. New research Infrastructures for the Arctic such as the European Research Icebreaker AURORA BOREALIS will give a strong impetus to expand and invest in Arctic research programmes.

2. The Policy Context of Arctic Research Activities:

The European Union has an increasing regional policy interest in the Arctic since it is a crucial area for climate change studies as well as environmental, social, energy, trade and security issues. The Northern Dimension is a critical pillar of the European Union in its political and Geostrategic interactions with the Russian Federation and neighbourhood countries. The European Union will shortly publish the first communication on the framework of an EU Arctic Policy an important signal for the collective integration of national approaches.

There is a need for commitment to connected planning and identification of common research strategies between European countries. It would be desirable to encourage the development of European multi-lateral partnerships, with common priorities and elements of shared investment. In this respect, the possibility of inter-connected planning and long-term prioritization of research topics at a European level needs to be further examined – strategic test case programmes in areas such as climate change should be pursued. Programme planning is intimately linked with the availability and suitability of supporting research infrastructure. It is therefore essential that when joint activities are prioritized or planned, the information flow between national programme managers from funding agencies and infrastructure managers is optimized at all stages of the planning process.

3. Launching Joint Research Programmes:

As a step towards the implementation of a European Contribution to an Arctic and Antarctic Observing system and maintaining the momentum of project teams and scientific efforts initiated during the International Polar Year (IPY). The European Polar Consortium www.europolar.org will be launching a major transnational programme call entitled: Polar-CLIMATE in September 2008 bringing together the European national funding agencies from 18 European countries. The committed funding available at this first phase by agencies and ministries is approx 10 Million Euros or (14.9 Million $US). This programme www.esf.org/polar-climate also enables access to research stations, vessels and observing platforms and is the first trans-national call of its type in the Polar Regions and is therefore a major contribution to the integration of European research efforts in the context of the European Research Area (ERA).

4. Sustaining Environmental Observations in the Arctic through International cooperation:

Arctic nations and have made strong efforts to develop a framework for future arctic observing networks. The SAON (Sustaining Arctic Observing Networks) www.arcticobserving.org process brings together a number of key organizations advocating overall coordination of observing systems in the oceanic, terrestrial and space domains and enhancement of access to Arctic research data.

European Countries can make a significant contribution towards the implementation of the SAON framework through initiatives such as the European Polar Board's INFRAPOLAR and Norwegian led SIAEOS (Svalbard Arctic Earth Observing System) projects.

5. Science Diplomacy and building partnerships:

Science Cooperation in the Arctic Region can contribute significantly to advancing foreign policy goals and engendering significant 'State to State' dialogue and providing opportunities for building common agendas. In the diplomatic realm Climate Change is one of the 'single biggest threat to the global community' and the Polar Regions are where the most significant and rapid changes will occur in proximity to the highly industrialized regions of northern Europe. A full understanding of the downstream Economic consequences and impacts on society and climate security & diplomatic issues will rely heavily on the most accurate research assessments and scientific evidence collected in the Arctic Region.

Way Forward for Research in the Arctic Region – European Research, Instruments and Objectives

Dr Elisabeth Lipiatou,
Head of Unit Climate Change and Environmental Risks,
DG Research, European Commission

Policy responses should be based on advanced knowledge and understanding of the processes affecting the Arctic. This requires research, systematic monitoring and regular assessments.

The Arctic region has since long been recognised by the European Commission as

- a key area that influences the current and future development of the global climate and
- a key area to explore and understand better the climate system
- an area particularly vulnerable to impacts of climatic changes and other environmental pressures.

These key points underline the need to continue to put emphasis on research programmes and projects covering a broad range of scientific disciplines in this region. Research plays a key role in understanding impacts and enabling sustainable development.

Many countries – including EU Member States – have large Arctic research programmes. European scientists have a long and outstanding history of research in the polar regions.

The European Commission supports research on polar regions via the Framework Programme, its main instrument for funding research and development. Under the Fifth and Sixth Framework Programmes more than 50 projects were related entirely or partially with polar issues. Only within FP6 the approximate budget encountered 86 million € for arctic related research and 32 million € in support to research infrastructures (and researchers) in the Arctic. Projects were focused on climate change and the functioning of the Earth system, environment and health, natural hazards, natural resources, research infrastructures and coordination activities. Additionally there are relevant activities under the EU Global Monitoring for Environment and Security (GMES), the Global Earth Observation (GEO) and the European Marine Observation and Data Network.

Amongst the projects mentioned above, there is the largest IPY project DAMOCLES (Developing Arctic studies and observing capabilities for long-term environmental studies).

The current Framework Programme the seventh one (FP7) started in 2007 addresses with new projects and large international consortia research topics at the current science frontier relevant to the arctic region. These include the Stability of the thermohaline circulation, the contribution of continental ice to sea-level ice, the health risks of populations in the arctic, climate impacts on the arctic ecosystem, acoustic technologies for observing the interior of the Arctic ocean. In addition the EC supports under FP7 the preparatory phase of the European research icebreaker Aurora Borealis.

Another type of contribution of the EC to the research in the polar regions is the recent release of two reports highlighting research actions in the polar environment and addressing future challenges.

The Commission recognising the importance and vulnerability of the Arctic area will continue to improve the research capacity to identify and understand processes and predict the trends and anthropogenic impacts affecting the Arctic, and support relevant research infrastructures.

Actions undertaken in the Framework Programme will:

- Continue to close knowledge gaps on natural processes, anthropogenic impacts and their feedbacks including climate change and pollution and the health risks of arctic populations by sustained support for Arctic research and Arctic research infrastructure.

- Assess the state and development of the Arctic environment in order to support with sound research results the development of appropriate EU policies.
- Strengthen international cooperation, including scientific activities after the IPY and enhance information exchange on different level on Arctic research projects and programs, facilitate the coordination of national programs, and ensure access to data and information from Arctic monitoring and research activities.

Information on recent EC support to Arctic research

The Framework Program (FP) already provided funding to several scientific domains related to Arctic and support for research on polar-regions continued under the Sixth Framework Program. In 'Climate research' two important projects on carbon budget were funded. CARBOOCEAN (Marine carbon sources and sinks assessment, EC contribution 14.449.600 €, 2005–2009) aims to determine the ocean's quantitative role for uptake of CO_2 while CARBO-NORTH investigates the terrestrial carbon budget in northern regions (Quantifying the carbon budget in North-Russia: past, present and future, EC contribution: 3.099.822 €, 2006–2010). To explore the dynamical mechanisms of North Atlantic/Arctic and the El Nino-Southern Oscillation the DYNAMITE project (Understanding of the dynamics of the coupled climate system, EC contribution 1.998.000 €, 2005–2008) was funded. Investigation on ozone loss and recovery continued to receive funding under the FP6. SCOUT-O3 integrated project (Stratosphere-Climate links with emphasis on the UTLS, EC contribution 15.000.000 €, 2004–2009) aims to provide reliable predictions of the future evolution of the ozone layer and surface UV and strongly contributes to the decisions of European policy makes. Two projects, DAMOCLES (Developing Arctic modelling and observing capabilities for long term environmental studies, EC contribution 16.100.000 €, 2005–2009) and SEARCH for DAMOCLES (Study for environmental Arctic change-Developing Arctic modelling and observing capabilities for long term environmental studies, EC contribution 605.000 €, 2006–2009) have the objectives to understand the changes occurring in the sea-ice, atmosphere and ocean of the Arctic and Sub-Arctic domain. Ice cores are used for palaeoreconstruction of past climate and to produce integrated climate analyses. The MILLENNIUM IP (European climate of the last millennium, EC contribution 12.600.000 €, 2006–2009) answers the question whether the magnitude and rate of 20th century climate change exceed the natural variability of European climate over the last millennium while EPICA-MIS (New palaeoreconstructions from Antarctic ice and marine records, EC contribution 2.500.000 €, 2004–2008) compares ice cores from different regions of Antarctica and of Greenland. 2007 was the International Polar Year and, as Specific Support Action, IPY-CARE (Climate of the Arctic and its role for Europe- a European component of the

International Polar Year, EC contribution 395.000 €, 2005–2006) created and coordinated a Pan-European science and implementation plan for Arctic climate change and ecosystem research programme. Symposium on "Polar environment and climate: the challenges- European research in the context of the International Polar Year" was the largest international event in relation of the International Polar Year organised by I5 on 5–6 March 2007. More than 160 participants from 21 countries attended at the meeting discussing issues on several scientific fields of polar research (see reference section).

Deep sea ecosystems are increasingly under threat due to anthropogenic impacts hence research is supported under FP6 to provide insight into the biodiversity, structure, function and dynamics of these ecosystems including study sites in the Arctic (HERMES, Hotspot Ecosystem Research on the Margins of European Seas, EC contribution 14.999.974 €, 2005–2009).

The objective of the FP Research Infrastructure action is to optimise the use and development of the best research infrastructures existing in Europe, and helping to create in all fields of science and technology new research infrastructures of pan-European interest. This action is supporting several projects relevant to Arctic research in FP6. In some of the projects, the Community support relates to the improvement and coordination of access of scientists to stations measuring specific components (carbon flux, atmospheric pollution, etc.) in the Arctic. Among these projects are the EUSAAR (European Supersites for Atmospheric Aerosol Research, EC contribution 5.100.000 €, 2006–2011), IMECC (Infrastructure for Measurement of the European Carbon Cycle, EC contribution 6.729.300 €, 2007–2011), SEADATANET (Pan-European Infrastructure for ocean and Marine Data Management, EC contribution 8.749.990 €, 2006–2011), and EARLINETASOS (European Aerosol Research Lidar Network: Advanced Sustainable Observation System, EC contribution 2.760.199 €, 2006–2011). EISCAT_3D (European Incoherent Scatter Scientific Association, EC contribution 2.017.445 €, 2005–2009) is a design study to investigate the technical feasibility, costs, and potential European manufacturers of a new next generation of ground based instruments providing high quality radar observations of the auroral and polar ionosphere and atmosphere. EISCAT (European Incoherent Scatter Scientific Association, EC contribution 580 212 €, 2006–2010) provides support for scientists to visit annually the EISCAT facilities. Several projects focused more on the Arctic itself. Arctic Lidar Observatory for Middle Atmosphere Research (ALOMAR, EC contribution 2.500.000 €, 2004–2008) offers a sophisticated research infrastructure for scientific studies of the Arctic atmosphere and ionosphere and provides scientists with unique experimental tools and highly sophisticated ground-based instrumentation. The European Centre for Arctic Environmental Research (ARCFAC V, EC contribution 1.833.600 €, 2006–2010) is situated in

Svalbard, Norway and represents an ideal permanent research platform in the European Arctic. The Centre has a well-developed infrastructure with highly specialised research facilities and used by a broad international research community. Abisko Scientific Research Station (ATANS, Enhanced Transnational Access to Abisko Scientific Research Station, EC contribution 504.000 €, 2005–2009) is located in one of Europe's last remaining wilderness area. The station is operated year-round in a subarctic environment and it is well equipped with lab.- and field equipment for bio- and geoscientific investigations. The Lapland Atmosphere-Biosphere Facility (LAPBIAT, EC contribution 1.490.534 €, 2006–2010) consists of seven installations which are spatially distributed to Finnish Lapland over 500 km range. It offers a unique access to study the interactions between the thermosphere, mesosphere, stratosphere, troposphere, biosphere and various types of ecosystems in the vicinity or north of the Arctic Circle. The public services in European countries with harsh marine climate need to co-operate in supporting safety of ship transport, fisheries and other marine activities. It should be highlighted that, during the 2002–2006 period, the European Strategy Forum for Research Infrastructures (ESFRI) was launched bringing together 27 EU Member and Associated States, appointed by Research Ministers, and one representative of the European Commission. ESFRI's role is to foster an "open method of coordination" between different countries, to discuss the long term vision at European level and to support the development of a European Research Infrastructures policy. ESFRI was given a mandate from the Council of Ministers in 2004, to prepare a strategic roadmap for Europe in the field of Research Infrastructures. This roadmap presented in 2006 describes the scientific needs for Research Infrastructures for the next 10–20 years[24]. Included in the first roadmap are the projects to build a new European research icebreaker Aurora Borealis and establish the European Multidisciplinary Seafloor Observation (EMSO). The AURORA BOREALIS will be the most modern and innovative research vessel in the world and will open new horizons for Europe in polar and marine research. The basic scientific objective of EMSO is to make real-time long-term monitoring of environmental processes in the geosphere, biosphere and hydrosphere of European seas.

The ice cover present on many northern sea areas poses many difficulties for shipping. SAFEICE (Increasing the Safety of Icebound Shipping EC contribution 1.050.000 €, 2004–2007) is concerned with the ice loads and safety of ships in ice, but also in the terms of how a better performance in ice can reduce the risks. The project aims to create a framework to develop design codes and regulations for a plastic design basis for icebound ships. Scientific motivation of IRIS (Ice ridging information for decision making in shipping operations, EC contribution 2.008.432 €,

[24] See http://cordis.europa.eu/esfri/

2003–2006) is to include new innovations in ice cover description to ice information.

EUROSPAN (European special populations research Network: quantifying and harnessing genetic variation for gene discovery, EC contribution 2.400.000 €, 2006–2009) project studies 5 special populations throughout Europe, which represent a unique resource for genomic research. In these populations the cohort of the Saami population in Northern Sweden is included. The research quantifies genetic variation in genes known to be involved in health and disease and harnesses this variation to identify novel variants.

The importance of polar regions resulted an ERA-NET action to coordinate national programmes on polar research. EUROPOLAR (European Polar Consortium for the Strategic coordination of European Polar RTD Programmes and Infrastructures) started in March 2005 and will last four years (EC contribution 2.484.993 €). Twenty–five partners, Ministries, National Funding Agencies, National Polar RTD Authorities from 19 countries including the Russian Federation and ESF European Polar Board participate in EUROPOLAR to work together, first to share information, then gradually to integrate their programmes, cooperate with sharing facilities and optimise the combined annual budget of around €500 million in national RTD programmes.

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Information on research infrastructures

Applying Traditional Knowledge to New Challenges

Mr Sven-Roald Nystø,
Special Adviser,
Árran Lulesami Centre and the Sami Institutions Network
on High North Affairs, Norway

Your Excellencies! Ladies and gentlemen!
My point of departure in this short intervention are four main dimensions which people living in the High North in various ways have to face the challenges of. These are:

1. Global warming which causes climate changes. Peoples and communities are already witnessing and experiencing the effects of these changes (ACIA 2004).
2. Increased oil, gas and other industrial activities in the Arctic, including transportation (Lindholt 2006).
3. The new geopolitical situation, which – a lot of media and others states - has developed into a race for ownership and possession of the Continental Shelf in the Arctic Ocean (Borgerson 2008).
4. Indigenous Peoples position within their respective nation-state in the Arctic, which is very diverse (Broderstad and Dahl 2004).

Adapting to changing conditions has always been a part of the cosmos of indigenous peoples. Their community life has been knowledge based since time immemorial, and has developed traditional indigenous knowledge of inestimable value. Sami societies are currently progressively developing into knowledge based communities also in the modern western globalizing sense of comprehension. This contributes to transform traditional Sami knowledge into sound mounting for future knowledge-based occupations and industries. This again attracts young people to settle in Sami areas. In that respect mapping, documentation and recognising the use of Sami traditional knowledge is needed. Important steps in that direction are now made by the Sami University College in Kautokeino, Norway. Together with local Sami institutions, a national program on traditional Sami knowledge is under development in Norway.

- The challenge is to extend this project across national borders to Sami communities and institutions in Finland, Sweden and Russia as well. The Sami Parliament in Sweden[25] in partnership with the Swedish Biodiversity Centre[26] has also worked on this issue. The IPY

[25] Sami Parliament, Sweden: http://www.sametinget.se/
[26] Swedish Biodiversity Centre: http://www.cbm.slu.se/index.htm

cross-border project EALÁT[27], on Arctic reindeer herders' traditional knowledge, vulnerability and adaptation to climate change, is of crucial importance in this context.

Indigenous peoples' languages have specific and distinct terminology for natural conditions. The *"Saami language is vast and specific for snow terminology and creates certainty to move and navigate in the landscape."* (Näkkäläjärvi 2008) The knowledge embedded in the language can be used to determine the changes that occur due to climate changes, because of exact concepts describing the variety of conditions. Use of modern technology is of paramount importance in preserving and developing the use of indigenous peoples' languages in the future.

- So on the basis of Sami and Greenland experience[28], the proposal on a special program on digital infrastructure for indigenous peoples' languages in the Arctic, especially in Russia, needs to be implemented. There are institutions in Norway, Finland, Germany and Russia which are ready for the task.

With the presumed increase in the industrialization and transport in the Arctic due to easier access to natural resources because of the climate change, we need to start the work developing and implementing common standards concerning indigenous peoples as an integral part of the extractive industries corporate social responsibilities, to apply to all economic activity in the High North[29].

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[27] Information on the Ealát project: http://www.ealat.org

[28] Information on the Sami language technology project, with reference to faroese, greenlandic and inupiaq languages, are to be found at the University of Tromsø (Norway) Sámi giellatekno: http://129.242.176.166/~gtuit/english.html

[29] Guidance on this issue is to be found in :
1) The EU Second Action Plan, 2004-2006 (Endorsed by the European Council October 16th-17th 2003) Annex 2 paragraph 1.1 Trade, Investment promotion and business co-operation : "*To support industrial enterprises in their moves towards more sustainable production, in order to improve economic performance while addressing environmental concerns and offering socio-economic opportunities to indigenous peoples of the region.*(page 21)
Strengthened attention to be paid by all Northern Dimension partners to indigenous interests in relation to economic activities, and in particular extractive industry, with a view to protecting inherited rights of self-determination, land rights and cultural rights of indigenous peoples of the region"(page 22) http://ec.europa.eu/external_relations/north_dim/ndap/ap2.pdf
2) Conference of the Parliamentarians of the Arctic Region 2004, Conference Statement, paragraph 26: "Follow-up on the findings of the Arctic Human Development Report by: (No vii): Strengthening attention to indigenous interests in relation to economic activities, and in particular in extractive industry, with a view to protecting the rights to self-determination, land rights and cultural rights of indigenous peoples of the Arctic."
http://www.arcticparl.org/_res/site/File/static/conf6_statement.pdf
3) The Norwegian Governments High North Strategy December 1 2006, Part 3 (page38): "The Government will seek to promote the development of common standards concerning indigenous peoples, to apply to all economic activity in the High North".
http://www.regjeringen.no/upload/UD/Vedlegg/strategien.pdf

- A cross-border circumpolar project on this issue will be the right path.

In closing I'd like to comment on two other issues:

- With reference to the challenges of the geopolitics in the Arctic, it's very interesting to note that some Arctic states, probably with Canada in lead, are incorporating indigenous peoples into their sovereignty ambitions in the Arctic.
- The subsistence focus in much of the politics and literature regarding the indigenous peoples of the Arctic, which doesn't fully reflect these peoples' complex reality in terms of changes from subsistence to a cash based economy, use of modern technology, urbanization, changes in social structures, education and other current phenomena's.

Both mentioned issues deserves to be reflected upon and addressed in the indigenous peoples' collaboration in the Arctic as well as within the confines of the University of the Arctic. The latter has in short time span managed to share resources and goals across national and institutional borders to ensure research, education and training of paramount importance for the High North.

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"No Ordinary Time"

Dr Simon Stephenson,
Director, Division of Arctic Sciences,
National Science Foundation, United States of America

"This is no ordinary time" was a phrase used by Eleanor Roosevelt as she lent support to her husband's unprecedented attempt to be elected to the US presidency a third time. But in the Arctic now, it is no ordinary time, as human-kind observes profound change in the environment, a constant theme discuss throughout this meeting. This change is part of a changing global climate, or environmental system. It should be considered a success of the global climate modelling community who first began to predict change several decades ago, including the prediction that change would be seen first, and to the greatest extent in the Arctic, years before the observationalists were confident that they were seeing secular change. I would add however, that we know from the paleo-records of the earth's history that climate change is complex, and I would speculate here that the real response will not follow the somewhat smooth graphs that we can currently produce from our models.

I was not asked to comment on the current EU/EC contributions to improving our understanding of the environmental system but I think that it is appropriate to lend an outsiders perspective. The EC Framework program just outlined by Dr. Lipiatou has made significant contributions already. When, on our side of the Atlantic, we first heard about the Damocles project we where frankly a little jealous! The scale and coherency of this framework project is to be commended. As Elizabeth outlined, Damocles scientists have worked well with their US science counterparts in our study of environmental Arctic change (SEARCH) program. Now we can add to Damocles the two new projects we have just heard about, one on Ice Sheet and Sea level and the other on Ocean thermohaline circulation, particular in the northern part of the North Atlantic and Arctic Ocean. Thus the EU continues makes significant investments in research on the complex Earth system, with a sizable investment in the Arctic component.

But Earth System science is a difficult undertaking. It stretches our ability to integrate across the disciplines in which we normally work and think. Perhaps work encompassing several discipline is becoming more common, but we still struggle to think about the earth system as an integrated whole. Add to that the need for observational scientists, modellers and synthesizers to work collaboratively, across disciplines and the task becomes daunting. While NSF has invested in Arctic system science since the early 90's, and we are proud of the success we have achieved, we are still learning, and probably have far to go. One success is putting forward the concept of, and beginning to invest in, a pan-Arctic observing

network, involving research, operational and community-based observing. We are please to see this concept gain traction and broad support.

Another new set of tools that hold promise for this endeavour being aggressively explored at NSF is the use of cyber-infrastructure, and in particular, the use of virtual organizations. A blueprint for this concept is contained in a report called "Beyond being there"[1]. Simply put, the concept is to facilitate access to resources and enhance problem solving across space and time. Similar concepts are working in different disciplines such as astronomy and solid earth geophysics. But perhaps the key resource is data. If we are to have a hope of understanding the workings of the earth system, or in our case, the Arctic system, research data must be broadly and quickly accessible to all. The potential of being able to access all data in problem solving far outweighs the benefit of holding data for a year or two (a common practice today) for individuals to work on.

The scale of the problem, understanding our changing planet, is without doubt a serious and difficult challenge to the research community, to the way we organize and work, but it is of critical importance to society. This is no ordinary time.

Thank you

Annexes

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Conference Programme

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CV of guest speakers

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List of participants

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Annex 5
Conference Essentials

Nordic Council of Ministers

Arctic Conference: Common Concern for the Arctic

9–10 September 2008 – Ilulissat, Greenland

www.norden2008.se

Greenland
Home Rule
Government

Annex 1

Conference Programme

9 September 2008

12.00–14.20 Registration, check-in and buffet lunch at Hotel Arctic, Hotel Hvide Falk and Hotel Icefiord

N.B. The Conference programme includes a sailing trip on the Ice Fiord in the evening when low temperatures are to be expected. We recommend that you bring waterproof and warm winter clothing already to the Conference Venue since there will be no time to get back to the hotels before departure to the harbour.

14.20–14.50 Transport from Hotel Arctic, Hotel Hvide Falk and Hotel Icefiord to the Conference Venue: Ilulissat Sports Centre

15.00–15.05 Welcome Remarks by Ms **Aleqa Hammond**, Greenland's Minister for Nordic Co-operation

15.05–15.10 Opening Remarks by Mr **Johan Tiedemann**, State Secretary, Ministry of Health & Social Affairs

15.10–15.15 Opening Remarks by Conference Chair, Ambassador **Hans Corell**, Former Under-Secretary-General for Legal Affairs of the United Nations

15.15–15.20 Opening Remarks by Mr **Halldór Ásgrímsson**, Secretary General to the Nordic Council of Ministers

15.20–15.30 Key Note Address by Dr **Joe Borg**, EU Commissioner for Fisheries and Maritime Affairs

15.30–15.40 Key Note Address by Ambassador **Laurent Stefanini**, French Presidency of the EU

15.40–15.50 Key Note Address Ms **Diana Wallis**, Vice President, European Parliament

15.50–16.20 Coffee

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Setting the Scene

16.20–17.00	Presentation on Environmental and Climate Change in the Arctic: Dr **David Carlson**, Director, International Polar Year Programme Office
17.00–17.40	Presentation on Globalization, Social Issues and Arctic Livelihood: Dr **Rasmus Ole Rasmussen**, Senior Research Fellow, Nordic Centre for Spatial Development (Nordregio)
17.40–18.05	Presentation of consultancy report "The European Union and the Arctic – Policies and actions": Ms **Adele Airoldi**, Milieu Ltd.

18.05–18.35 Transport to the harbour

Press Conference

18.20–18.50	With Conference Speakers (9 September) and Conference Chair
18.50–19.00	Transport to the harbour for Conference Speakers, Conference Chair and Press

18.45–21.00 Sailing, including light dinner on Ilulissat Icefjord (UNESCO World Heritage Site) hosted by Greenland Home Rule Government

21.00–21.30 Transport to Hotel Arctic, Hotel Hvide Falk and Hotel Icefiord

Optional: The bar at Hotel Arctic will be open until 01.00

10 September 2008

06.00–07.45	Breakfast at hotel
07.45–08.20	Transport to the Conference Venue: Ilulissat Sports Centre

08.30–08.40 Introduction by the Conference Chair, Ambassador **Hans Corell**, Former Under-Secretary-General for Legal Affairs of the United Nations

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Panel discussions – Common Concern for the Arctic

08.40–09.40 TERRESTRIAL LIVING RESOURCES

Effects of climate change and consequences of melting permafrost and glaciers on the protection and sustainable use of terrestrial living resources. Direct and indirect impacts of current agricultural and forestry policies (economic, social and environmental). Maintenance of biological diversity and use of genetic resources. Land use and management of natural resources. Impacts of industrial and radiological pollution.

Introduction by: Mr **Jan Vapaavuori**, Finland's Minister for Nordic Co-operation
Moderator: Ms **Annika Ström Melin**, Journalist
Panellists: Ms **Malin Brännström**, Legal Advisor, National Union of the Swedish Sámi People
Mr **Jesper Madsen**, Director of Research Department, National Environmental Research Institute (NERI), Denmark
Mr **Yrjö Eljas Norokorpi**, Area Manager, Natural Heritage Services of Metsähallitus, Finland
Mr **David Stanners**, Head of Programme, Strategic Knowledge and Innovation European Environment Agency (EEA)

09.40–10.40 MARINE LIVING RESOURCES

Effects of current policies on the protection and sustainable use of fish stocks and other marine living resources, such as seals and whales. The adequacy of regional and global conventions on fisheries management and biodiversity. Effects of management regimes, trade and fisheries policies. Implications of climate change for future policies on sustainable management of living marine resources. Pollution from persistent organic pollutants and heavy metals in Arctic waters. Bioprospecting (commercial use of genetic biological material).

Introduction by: Ms **Diana Wallis**, Vice President, European Parliament
Moderator: Ms **Annika Ström Melin**, Journalist
Panellists: Mr **Poul Degnbol**, Scientific Advisor DG Fisheries and Maritime Affairs, EU Commission
Mr **Aqqaluk Lynge**, President, Inuit Circumpolar Council, (ICC) Greenland
Ms **Jacqueline McGlade**, Executive Director, European Environment Agency (EEA)
Mr **Jóhann Sigurjónsson**, Director General, Marine Research Institute, Iceland

10.40–11.00 Coffee

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11.00–12.30 NON-RENEWABLE RESOURCES – NEW OPPORTUNITIES AND CONCERNS

Challenges and opportunities due to effects of climate change. Expanded exploitation of non-living resources, e.g. oil, gas and minerals. New maritime transportation routes. Increased commercial shipping. Need for improved regulation to enhance maritime safety and environmental protection at sea. Effects of increasing tourism on the environment, local development and traditional living conditions. Policies to reduce risk and prevent physical damage to infrastructure and environmental disasters on land. Emergency and rescue capabilities. Best practices, improved methods and new technologies.

Introduction by: Ms **Heidi Grande Røys**, Norway's Minister for Nordic Co-operation
Moderator: Ms **Annika Ström Melin**, Journalist
Panellists: Ms **Mette Karine Gravdahl Agerup**, Assistant Director, General Ministry of Petroleum and Energy, Norway
Mr **Claude Rouam**, Head of Unit for Enlargement and Neighbouring Countries, DG ENV, EU Commission
Mr **Martin Sommerkorn**, Senior Climate Change Advisor, World Wide Fund for Nature (WWF)
Mr **Dimitrios Theologitis**, Head of Unit for Maritime Transport, DG TREN, EU Commission
Mr **Joseph Westwood-Booth**, Head of Marine Technology Section, International Maritime Organization (IMO), United Nations

12.30–13.00 Transport to hotel Arctic
13.00–14.00 Buffet lunch at hotel Arctic
14.00–14.30 Transport to the Conference Venue: Ilulissat Sports Centre

14.30–15.30 LOCAL DEVELOPMENT – CAPACITY BUILDING IN THE ARCTIC

Current local and regional development policies. Migration trends in Arctic regions. The role of education and training to promote capacity building and reduce gender imbalances. The EU-Greenland OCT Agreement, an example of external support for local development policies. Impacts of new information technologies on local culture and traditional values. New economic activities. Policies to retain income from natural resource extraction in Arctic communities. Provision of education, health and social services in remote areas. Policies to promote job opportunities and maintain the viability of traditional livelihoods.

Introduction by: Mr **Bertel Haarder**, Denmark's Minister for Nordic Co-operation
Moderator: Ms **Annika Ström Melin**, Journalist
Panellists: Ms **Linn Harkess**, Programme Manager, Europeaid,EU Comission
Mr **Russel Shearer**, Director, Northern Science and Contaminants Research Directorate, Indian and Northern Affairs, Canada
Ms **Lida Skifte Lennert**, Head of Department, Ministry of Foreign Affairs, Greenland
Mr **Pavel Sulyandziga**, First Vice-president, Russian Association of Indigenous Peoples of the North (RAIPON)

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15.30–16.30 **ARCTIC RESEARCH – SCIENCE AND TRADITIONAL KNOWLEDGE**

Policies to enhance the impact of Arctic research, access to data and dissemination of research results. Local participation and the usefulness of scientific research to local communities. Combinations with traditional knowledge. The International Polar Year and other major research activities in the Arctic. Need for enhanced circumpolar coordination and access to polar regions for scientific research. Options for new forms of joint transnational research cooperation. Policies to ensure sustained funding and of expanded long-term observation and monitoring of Arctic change.

Introduction by: Dr **David Carlson,** Director, International Polar Year Programme Office
Moderator: Ms **Annika Ström Melin**, Journalist
Panellists: Dr **Paul Egerton**, Executive Director, European Polar Board & European Polar Consortium, European Science Foundation
Ms **Elisabeth Lipiatou**, Head of Unit for Climate Change and Environmental Risks, EU Commission, DG Research
Mr **Sven-Roald Nystø**, Special Adviser, Árran Lulesami Centre and The Sami Institutions Network on High North Affairs, Norway
Dr **Simon Stephenson**, Director, Division of Arctic Sciences of America, National Science Foundation of the United States

16.30–17.00 **Coffee**

Concluding Discussion

17.00–18.00 Summary by Mr **Janos Herman**, Principal Advisor, EU Commission, DG RELEX
Conclusions by Conference Chair, Ambassador **Hans Corell**, Former Under-Secretary-General for Legal Affairs
18.00–18.15 Closing of the Conference with Concert by the local choir Ilulissani Erinarsoqatigiit

18.15–18.45 Transport to Hotel Arctic, Hotel Hvide Falk and Hotel Icefiord
19.15–19.30 Transport from Hotel Hvide Falk and Hotel Icefiord to Hotel Arctic
19.30–20.00 Evening drink on the terrace, Hotel Arctic
20.00–22.00 Dinner, Hotel Arctic hosted by Nordic Council of Ministers
Dinner Address by Mr **Halldór Ásgrímsson**, Secretary General to the Nordic Council of Ministers

11 September 2008

06.00–07.45 Breakfast at hotel
From Approx. 07.20 Transport to the airport from Hotel Arctic, Hotel Hvide Falk and Hotel Icefiord

Please observe, information on exact schedules for the transport to the airport will be provided at the hotels.

Annex 2 – CV of guest speakers

Opening Session

Ms Aleqa Hammond (Greenland) has since 2007 been Minister for Nordic Co-operation and Minister for Finance & Foreign Affairs. Ms Hammond has been Minister for Family & Justice from 2005– 2007. Ms Hammond was elected as MP to the Greenland Parliament in 2005. Prior to this Ms Hammond was Head of the Tourist Board in Qaqortoq from 2004–2005 and has held positions as Chairman of the Board in the Greenland Adventure Race from 2004–2006, member of the board in the Greenland Adventure Race and the Gardar Foundation in 2006. Ms Hammond has been commissioner in the Inuit Circumpolar Conference in 1999–2003 and worked for Nuuk Tourism in 1996–1999.

Mr Johan Tiedemann (Sweden) is State Secretary at Ministry of Health and Social Affairs. Mr Tiedemann is the Swedish member of the Steering Committee for Nordic cooperation. Mr Tiedemann was State Secretary in the Ministry of Education, Research and Culture in 2006 and from 2002–2006 he was the Chair of the Municipal Auditors in Sigtuna Municipality. From 1998–2006 Mr Tiedemann was Deputy Head and culture policy secretary, Moderate Party Parliamentary Secretariat and Member of Municipal Assembly in Sigtuna Municipality from 1982–2003. He was Chair of Social Welfare Committee in Sigtuna Municipality and Chair of Stockholm County Museum Foundation from 1998–2002. Mr Tiedemann was Social policy secretary at the Moderate Party Parliamentary Secretariat from 1989–1998 and Deputy Chair of Social Welfare Committee in Sigtuna Municipality from 1991–1994.

Dr. Hans Corell (Sweden) was Under-Secretary-General for Legal Affairs and the Legal Counsel of the United Nations 1994–2004, supervising among other Law of the Sea matters. From 1962 he served in the Swedish judiciary, before joining the Ministry of Justice in 1972, eventually becoming a Director in 1979. In 1981, he was appointed Chief Legal Officer of the Ministry. He was Ambassador and Under-Secretary for Legal and Consular Affairs in the Ministry of Foreign Affairs 1984–1994. In 2004 he retired from Public service and joined Sweden's larges law firm Mannheimer Swartling as a consultant.

Mr Halldór Ásgrímsson (Iceland) has since 2007 been Secretary General to the Nordic Council of Ministers. Prior to this Mr Ásgrímsson was prime minister of Iceland from 2004–2006. He was Minister for Foreign Affairs and External Trade, Defence and Foreign Aid from 1995–2004 and Minister for Nordic Co-operation from 1985–1987/1995–1999. Mr Ásgrímsson has also been Minister for Fisheries in 1983–1991 and Minister of Justice and Ecclesiastical Affairs in 1988–1989. From 1974–1978/1979–2006 he was a member of the Althingi (Icelandic Parliament) for the Progressive Party and its chairman from 1994–2006. Mr Ásgrímsson was Chairman of the Arctic Council from 2002–2004 and Chairman of the EFTA Council and EEA Council in 1996/1998/2000/2002.

Mr Joe Borg (Malta) was nominated by the Maltese government as the first Maltese European Commissioner in 2004. From 1999 – 2004 he was Minister of Foreign Affairs, Chairman of the Committee of Ministers of the Council of Europe (Nov. 2002 – May 2003) and Member of the Commonwealth Ministerial Action Group (Mar. 2002 – 2004). From 1998 – 1999 he was Parliamentary Secretary within the Ministry of Foreign Affairs, Member of the Foreign Affairs Committee of the House of Representatives and First Vice-Chairman of the EU-Malta Joint Parliamentary Committee. Mr Borg was International Secretary of the Nationalist Party in 1997 and from 1996 – 1998 he was Shadow Minister responsible for Industry and for the Impact of EU Policies, Member of the Foreign Affairs Committee of the House of Representatives and Member of the EU-

Malta Joint Parliamentary Committee. Mr Borg has been a Member of the House of Representatives (Nationalist Party) from 1995 – 2004 and Director, Board of Directors, Central Bank of Malta from 1992 – 1995. From 1989–1995 Mr Borg established and led the Directorate for EU Matters within the Ministry of Foreign Affairs.

Mr Laurent Stefanini (France) joined the French diplomatic service in 1985 after studying political sciences and history at Ecole Nationale d'Administration and New York University. Since then he has been working in Paris at the legal department (law of the sea and law of disarmament), the economic department (head of the environment, energy and transportation division) and the office of the Secretary General. He was posted in New York (French Mission to the United Nations) and Rome (Embassy to the Holy See) and was also for a while deputy head of the protocol department and adviser for religious affairs at the Foreign Ministry. Mr Stefanini, who is also teaching in various universities and giving lectures, has since 2006 taken on the new duty of Ambassador for the Environment for the French Government.

Ms Diana Wallis (United Kingdom) has since 2007 been Vice President of the European Parliament. Ms Wallis has been Member of the European Parliament since 1999. First Vice-Chairwoman, Delegation for relations with Switzerland, Iceland and Norway (1999-2004); ADLE (Alliance of Liberals and Democrats for Europe) coordinator on the Committee on Legal Affairs and the Internal Market (1999–2004); leader of the Liberal Democrat delegation (2000–2004). Ms Wallis has been President of the Institute of Translation and Interpreting since 2001. Ms Wallis was the Deputy Leader of East Riding of Yorkshire Unitary Council from 1995–1999. Ms Wallis was admitted as solicitor in 1984 and has been a Solicitor in private practice from 1984–1999.

Setting the Scene

Dr David Carlson (USA) received a PhD in Oceanography in 1981. He was Professor of Oceanography at Oregon State University until 1990. Dr Carlson was Director of the TOGA COARE International Project Office, a large international project focussed on the western Pacific and global teleconnections from 1990–1994. He was Director of Atmospheric Technology Division for NCAR from 1994–2003, providing support and guidance for weather, climate, and air quality research around the world. Dr Carlson has been Director of the 'International Polar Year 2007–2008' International Programme Office since May 2005.

Dr Rasmus Ole Rasmussen (Denmark) received a PhD in Economic Geography in 1976, and has been affiliated with Roskilde University in Denmark from 1974, since 1991 as director of NORS – North Atlantic Regional Studies. From 1987 to 1991 he was working in Greenland in connection with the establishing of Statistics Greenland. Visiting Professor at McGill University in 1994–95, Fulbright associate at University of Alaska, Fairbanks in 1995–96, and Nordic Visiting Professor at the University of Lapland in Rovaniemi, Finland in 1999–2002. Since 2007 he has been Senior Research Fellow at Nordregio – Nordic Centre for Spatial Development in Stockholm. Most of his research career has been in relation to social and economic development in the Arctic. He has published extensively on topics such as fisheries dependent communities in the Arctic, and with special focus on social and economic issues in relation to Greenland. He was referee on Arctic Council's project: Arctic Human Development Report, and is now a member of the follow-up working group on Arctic Social Indicators.

Ms Adele Airoldi (Italy) is the author, for Milieu Ltd, of the report commissioned by the Nordic Council of Ministers: '*The European Union and the Arctic – Policies and actions'*. Ms Airoldi worked for many years for the Secretariat of the EU Council of Ministers in the research and environment sectors, where she dealt with e.g. climate change issues. During that period, she added to her previous qualifications, which included international relations, a master in environment studies, as well as a Master in polar studies from Cambridge University. She further pursued her interests in Arctic matters as a fellow at Harvard University in the mid 1990s.

Panel moderator:

Ms Annika Ström Melin (Sweden), freelance journalist and writer specialized in European affairs, previously working for public service broadcaster Swedish Radio, daily newspaper Svenska Dagbladet and several other Swedish newspapers and media. She was also Director of Sieps, Swedish Institute for European Studies, and she is the author of ”Européerna” (The Europeans), which was nominated to the European Book Prize 2007.

Panel 1: Terrestrial living resources

Mr Jan Vapaavuori (Finland) has since 2007 been Minister of Housing and Minister at the Ministry for Foreign Affairs (Nordic co-operation). Mr Vapaavuori is a Member of Parliament (National Coalition Party) since 2003. He has been the Party Chair of the National Coalition Party, Helsinki City Council from 2003–2005 and Vice Chair of that party from 2003–2005. Mr Vapaavuori has been a Member of the Speaker's Council and Chair of the Constitutional Law Committee in 2007. He was Vice Chair of the National Coalition Party parliamentary group in 2006–2007 and Member of the Parliamentary Grand Committee, from 2003–2007. He has been Member to the Finnish Delegation to the Nordic Council from 2003–2006. Mr Vapaavuori was Managing Director at Track & Field Finland Oy, 2001–2003 and Special Adviser to Minister for Foreign Trade 1999–2001. From 1995–1999 he was Secretary for International Affairs for the National Coalition Party and Special Adviser to Minister of Justice in 1995 and to the Minister for Foreign Trade in 1993–1995.

Ms Malin Brännström (Sweden) is assigned as an expert in governmental investigations in Sámi related topics in Sweden. She has served as an expert on the committee of the Nordic Sámi Convention 2003–2006 and as Legal advisor at the County of Västerbotten Administration 1999–2000. Ms Brännström has served the Swedish Judiciary from 2002–2004.

Mr Jesper Madsen (Denmark) is biologist (D. Sc.) and has since 2002 been Director of Department of Arctic Environment at the National Environmental Research Institute, University of Aarhus. The department carries out environmental research and biological and geophysical monitoring in Greenland and acts as scientific advisor of the Bureau of Minerals and Petroleum of the Greenland Home Rule. The department is national scientific focal point for Arctic Council AMAP working groups, involving climate change effects on ecosystems and contaminant monitoring and effect studies. Dr. Madsen is a population biologist, with an expertise on Arctic migratory bird ecology.

Dr Yrjö Norokorpi (Finland) has worked for Metsähallitus (Finnish Forest and Park Services), Natural Heritage Services as Area Manager of Nature Conservation in Lapland since 2002. Formerly he was a special research scientist of the Finnish Forest Research Institute, Rovaniemi, Lapland in 1970–2001. His expertise involves timberline forests and their ecology, silvicultural methods, forest pathology and air pollutants besides nature conservation.

Mr David Stanners (United Kingdom) is the Head of Programme at the European Environment Agency (EEA) for Strategic Knowledge and Innovation since 2001. He has worked for the European Environment Agency since 1995. He has a PhD in Environmental Science from Lancaster University in 1980. He was with the European Commission’s Joint Research Centre in Ispra, Italy from 1981–1990. He was a Member of the Commission’s Task Force preparing for the European Environment Agency from 1990–1994. He managed and co-edited the project developing the first pan-European state of environment report published in 1995 as: *‘Europe’s Environment: The Dobris Assessment’*. Current responsibilities include: the development of the 4th pan-European assessment of Europe’s Environment (the 2007 Belgrade report); Volume 2 of ‘Late Lessons from Early Warnings’ on the precautionary principle; environment and health;

chemical substances hazardous to the environment and sustainable production and consumption.

Panel 2: Marine living resources

Ms Diana Wallis (United Kingdom) has since 2007 been Vice President of the European Parliament. Ms Wallis has been Member of the European Parliament since 1999. First Vice-Chairwoman, Delegation for relations with Switzerland, Iceland and Norway (1999–2004); ELDR coordinator on the Committee on Legal Affairs and the Internal Market (1999–2004); leader of the Liberal Democrat delegation (2000–2004); ALDE/ADLE coordinator on the Committee on Legal Affairs (since 2004). Ms Wallis has been President of the Institute of Translation and Interpreting since 2001. Ms Wallis was the Deputy Leader of East Riding of Yorkshire Unitary Council from 1995–1999. Ms Wallis was admitted as solicitor in 1984 and has been a Solicitor in private practice from 1984–1999.

Mr Poul Degnbol (Denmark) is a Scientific Adviser in the European Commission charged with improvement of the scientific support to policies, most notably the Common Fisheries Policy, and dialogue with stakeholders regarding science. An Ecologist by training, he has for more than 25 years worked with marine management issues in Europe, Africa and Asia as Researcher, Research Director and Adviser and through capacity development projects. Before joining the Commission services in January 2006, he was Director for a research institute focusing on institutional aspects of management (Institute for Fisheries Management and Coastal Community Development, Denmark) and Chair of the Advisory Committee on Fisheries Management of the International Council for Exploration of the Sea (ICES).

Mr Aqqaluk Lynge (Greenland) is President of the Inuit Circumpolar Council (ICC) Greenland, and has served continuously from 1980 onward as an executive council member of ICC, including 6 years as its international chair. Mr. Lynge has been active politically in his home Greenland, serving as minister in various portfolios and promoting the further self-government of Greenland, as well as internationally through ICC and, most recently from 2005–2007, as Vice Chair and member of the UN Permanent Forum on Indigenous Issues. Aqqaluk Lynge is also a well-known author and poet, and is past Chair of the Greenland's Writers' Association.

Professor Jacqueline McGlade (United Kingdom) is Executive Director of the European Environment Agency, on leave from the Mathematics Department at University College London where she is Professor of Environmental Informatics. Her research includes intelligence systems, planetary dynamics and satellite technology, genetics, the functioning of ecosystems, and natural resource management. From 1980–87 she was a Senior Research Scientist in Fisheries and Oceans Canada, responsible for fisheries and oceanography in the north-west Atlantic and a member of the Canadian team for the Gulf of Maine boundary dispute at the International Court of Justice. From 1986 onwards key appointments have included Fellow of Darwin College, Cambridge University, Institute Director at the Forschungszentrum Jülich, Professor of Biological Sciences, Warwick University, and Director of the UK’s NERC Centre for Coastal and Marine Science. Professor McGlade has worked for many years in the Arctic, south-east Asia and west Africa, published more than 100 peer-reviewed papers and several books, has written and presented the feature film “Our Arctic Challenge” and radio series Ocean Planet, and Nature’s Numbers and appeared in many television programmes. She is Director of a software company and has two daughters who are committed to creating a sustainable future for their own generation.

Mr Jóhann Sigurjónsson (Iceland) became Director General of the Marine Research Institute, Reykjavik in 1998 and principal scientific advisor to the government of Iceland on matters related to sustainable fisheries. During 1996–1998 he was appointed Ambassador and Chief Negotiator on Fisheries in the Icelandic Ministry for Foreign Affairs, working on management solutions of several international fisheries, including

the agreements made on the management of Atlanto-Scandian herring stock and management of cod and other fish in the Barents Sea ("Loophole"). During his earlier carrier he was involved in research, management and conservation of large whales at both national and international levels (IWC and NAMMCO) and actively participated in the work of ICES (International Council for the Exploration of the Sea) as expert and member of Council and Bureau the last 25 years. Since 2008 he has been on the board of directors of EFARO (European Fisheries and Aquaculture Research Organisations).

Panel 3: Non-renewable resources

Ms Heidi Grande Røys (Norway), has been Minister of Government Administration and Reform since 2005, and was member of Flora City Council and the council's Executive Committee 1991–2001. She was Member of Parliament for the Socialist Left Party and a member of the Parliaments's Finance Committtee 2001– 2005. Ms. Grande Røys has been vice president of the county party organisation from 1998 and is a member of the party's programme committee since 2000. She was leader of the planning committee for Torvmyrane school, Flora 1994–1998, a member of the Main committee for education, Flora 1995–1999, leader of the municipal project committee, Flora 1997–1999, and leader of the main committee for health and social affairs, Flora 1999–2001. In her party, Ms Grande Røys has been vice president of the county party organisation from 1998, a political adviser for the party's parliamentary group 1999–2000 and is a member of the Socialist Left Party's program committee since 2000.

Ms. Mette Karine Gravdahl Agerup (Norway) has since 2002 been the deputy head of the Legal Section for oil and gas issues in the Norwegian Ministry of Petroleum and Energy. She graduated as a lawyer at the University of Oslo in 1981 and has since been working as a legal councellor for oil and gas issues in the Norwegian Maritime Directorate, the Ministry of Regional Affairs and the Ministry of Petroleum and Energy. She has been working on legal issues concerning health and safety issues, licensing of acreage, EU/EEA, and international treaties, including WTO. She has also been following Russian energy policies and legal issues concerning oil and gas since 1992.

Mr Claude Rouam (France) has a postgraduate education in economics, political science and land use planning. He started his work in the European Commission in DG Competition before joining DG Environment. He had responsibilities relating to Integrated Product Policy, EMAS, Impact Assessment, Coastal Zone Management, LIFE Environment, Cohesion Policy and the INSPIRE Initiative. Since 2004, he is head of the unit dealing with Enlargement and Neighbouring Countries. He is a member of the boards of two regional Environmental Centres, REC/CEE and REC/Russia.

Dr Martin Sommerkorn (Germany) received a Ph.D. in Ecology in 1998. Since then he has worked as a scientist all around the Arctic, researching the arctic terrestrial carbon cycle. He was based at research institutes and universities in Kiel, Germany, Lund, Sweden, and Woods Hole, USA. Since 2003, he had his own research programme at the Macaulay Institute in Aberdeen, Scotland, investigating the effects of climate on northern ecosystem carbon cycling. Earlier this year he took a leave from his research position and joined WWF International's Arctic Programme as Senior Climate Change Advisor.

Mr Dimitrios Theologitis (Greece) is working as a Head of Unit (Maritime Transport and Ports Policy; Maritime Security) in the EU Commission (DG Transport and Energy) and the main domains are the definition of a vision for maritime transport for the next ten years, the realisation of the European Maritime transport space without barriers, the promotion of short sea shipping, the follow-up of the European ports policy programme, the development of an e-Maritime programme, international relations with the major European trading partners in the maritime domain, as well as the further development of maritime security. Mr Theologitis has worked in the European Commission since 1984 and the positions held include Rationalisation of Working Methods, Head of Unit for Computer Aids for Translation, Head of unit "Road Safety and Technology" in the Di-

rectorate General for Energy and Transport. 2005–2008, Head of Unit "Security Policy and Maritime Security" in DG TREN.

Mr Joseph Westwood-Booth (USA) received his Bachelor of Science Degree in Marine Engineering in 1987. After serving as an Engineering Officer in the United States Navy, he was employed by the U.S. Coast Guard to develop international regulations related to the safety of passenger ships. During his time at the U.S. Coast Guard, Mr. Westwood-Booth served as the head of the United States delegation to the IMO Sub-Committee on Fire Protection until he was appointed to IMO in 1998. In 2004, Mr. Westwood-Booth was appointed as the Head of Marine Technology.

Panel 4: Local Development: Capacity Building in the Arctic

Mr Bertel Haarder (Denmark) has been a Minister for several different portfolios since 1982 and up till now. He has served the longest period as Minister for Education. He has also served as Minister for Nordic Cooperation, Minister for Ecclesiastical Affairs, Minister for Research, Minister for Refugee, Immigration and Integration Affairs, Minister for Development Cooperation, and Minister for European Affairs. Furthermore Mr. Bertel Haarder has been a Member of the European Parliament from 1994–2001. Since 1975 he has been a member of the Danish Parliament (The Folketing) and from 1999–2001 he was Vice President of and Foreign Policy spokesman for the Group of the European Liberal, Democrat and Reform Party in the European Parliament.

Ms Linn Harkess (Sweden) is trained as a political scientist and is working as a programme manager at EuropeAid, European Commission since May 2007. She is responsible for the sector budget support programme to the Greenlandic vocational training sector 2007–2013. She has previously worked as a project manager at the Delegation of the European Commission in the Philippines and at the Swedish Permanent Representation to the EU in Brussels on issues relating EU external assistance.

Mr Russel Shearer (Canada) has been the Director of Northern Science and Contaminants Research of Indian and Northern Affairs Canada for the past 5 years. He is the current Vice-Chair and Canadian Head of Delegation of the Arctic Monitoring and Assessment Programme (AMAP) under the Arctic Council. He continues to be a member of the Canadian delegation to the global legally binding UNEP Stockholm Convention on Persistent Organic Pollutants (POPs). He has chaired and managed the Canadian inter-agency Northern Contaminants Program for the past 12 years which deals with the long-range transport of contaminants into the Arctic Region. He is a member of the Research Management Committee of ArcticNet, a Network Centre of Excellence that deals with Climate Change research in the coastal regions of the Arctic. He has worked on northern environmental issues for over 22 years and has travelled extensively throughout the Arctic region. Educated at the University of British Columbia, University of Guelph and Dalhousie University in marine biology and oceanography, he is the editor and author of numerous scientific publications on environmental contaminants in the Arctic.

Ms Lida Skifte Lennert (Greenland) has been the Head of Department of Foreign Affairs under the Greenland Home Rule Government since January 2007. From 2004–2007 Ms Lennert worked for the Greenland Representation where she took part in the drafting of the Greenland EU partnership that entered into force in 2007. In Brussels Ms Lennert was Chair of the OCT - EU working group of environment. She has worked for the Greenland Home Rule Government since 1998, as Head of Section in the Bureau of Minerals and Petroleum dealing with licensing and exploration and exploitation of petroleum resources in Greenland and as a Special Adviser in Petroleum Regulative matters. During the period 1998–2004 she has been posted in the Danish Energy Agency in Copenhagen and Phillips Petroleum in Stavanger, Norway - dealing with legal petroleum matters as part of her work in the Bureau of Minerals and Petroleum. She is member of the board in NORA, Nordic Atlantic Cooperation, member of the Greenland

Competition Board and member of the Board of Directors in the National Oil Company Nunaoil. From November 2008 she will be in charge of the Greenland Representation in Brussels, Belgium.

Mr Pavel Sulyandziga (Russia) First Vice-President of Russian Association of Indigenous Peoples of the North, Siberia and Far East (RAIPON) and a Member of the Public Chamber of the Russian Federation and the UN Permanent Forum on Indigenous Affairs. Born in the Udege community of the Primorsky Region of the Russian Far-East he worked as a teacher of mathematics and science in his village school. Ten years ago he moved to Moscow to promote the interests of the indigenous peoples of the Russian North and represent them internationally. He became an indigenous expert and successful negotiator between the indigenous communities and private industry.

Panel 5: Arctic Research – Science and Traditional Knowledge

Dr. David Carlson (USA) received a PhD in Oceanography in 1981. He was Professor of Oceanography at Oregon State University until 1990. Dr Carlson was Director of the TOGA COARE International Project Office, a large international project focussed on the western Pacific and global teleconnections from 1990–1994. He was Director of Atmospheric Technology Division for NCAR from 1994–2003, providing support and guidance for weather, climate, and air quality research around the world. Dr Carlson has been Director of the 'International Polar Year 2007–2008' International Programme Office since May 2005.

Dr Paul Egerton (United Kingdom) is the Executive Director of the European Polar Board and European Polar Consortium as a senior member of the science management staff of the European Science Foundation in Strasbourg, France. He also holds the position of Political Director of the European Polar Research Icebreaker Consortium-AURORA BOREALIS. Between 2000–2004 he was engaged as the Science programme manager of the UK Ocean Margins LINK programme at the Natural Environment Research Council UK. During 1998–2000 Dr Egerton held the position of Associate research professor at the Energy and Geoscience Research Institute, University of Utah. Dr Egerton was a Senior Science Officer at the British Geological Survey-Marine and Petroleum Geology working as an adviser with the UK Department of Trade and Industry and the Falkland Islands Government on Petroleum exploration. He gained his PhD in Geology/Geophysics at the University of Leeds.

Dr Elisabeth Lipiatou (Greece) is Head of Unit 'Climate Change and Environmental Risks' of Directorate General Research of the European Commission, 2005-today. She was a Research/Policy Officer in the Research Policy and the Marine Science and Technology Unit of the Environment Programme of the European Commission, 1993–2005. She was a researcher in research institutions/universities in France, Spain and United States, 1984–1993. She has a PhD in chemistry and oceanography.

Mr Sven-Roald Nystø (Norway) was born i 1956 in the municipality of Tysfjord in Norway and was raised with the Sami language as his mother tongue. Nystø was the president of the Sami Parliament in Norway 1997–2005, and worked with indigenous peoples issues in that capacity at the Nordic and Arctic level. He represented the Sami in the Standing Committee of the Parliamentarians of the Arctic Region for 4 years. Currently he works as Special Adviser at the Árran Luelsami Centre in Tysfjord and coordinates the Sami Institutions Network on High North Affairs. He is also as a member of the Norwegian Government Expert Commission on High North Affairs, has 14 years of experience from the Norwegian Royal Commission on Sami Rights and 30 years from various Non Governmental Sami organizations.

Dr Simon N. Stephenson (USA) was appointed Director of the Division of Arctic Sciences in April 2006. The Division, in NSF's Office of Polar Programs, is responsible for a research investment of about $ 90 M annually. Dr. Stephenson has over 30 years of ex-

perience in polar research, both conducting his own research on glaciers and ice sheets and administering programs in both the Arctic and Antarctic. Dr. Stephenson also severs as the current Chair of the Forum of Arctic Research Operators. Dr. Stephenson holds a Master of Philosophy in Glacier Geophysics from the Council for National Academic Awards, UK.

Concluding discussion

Mr Janos Herman (Hungary) is Principal Adviser for Regional Cooperation and Deputy Political Director at the European Commission's Directorate- General for External Relations. From 2001 to 2005 he was the Permanent Representative of Hungary to NATO. Earlier he was State Secretary in the Ministry for Foreign Affairs of Hungary (1998–2000) and government spokesman on foreign affairs (1990–94). From 1995 to 1998 he served as Ambassador of Hungary in Athens. Janos Herman joined the Hungarian Ministry for Foreign Affairs in 1975.

Dr. Hans Corell (Sweden) was Under-Secretary-General for Legal Affairs and the Legal Counsel of the United Nations 1994–2004, supervising among other Law of the Sea matters. From 1962 he served in the Swedish judiciary, before joining the Ministry of Justice in 1972, eventually becoming a Director in 1979. In 1981, he was appointed Chief Legal Officer of the Ministry. He was Ambassador and Under-Secretary for Legal and Consular Affairs in the Ministry of Foreign Affairs 1984–1994. In 2004 he retired from Public service and joined Sweden's larges law firm Mannheimer Swartling as a consultant.

Annex 3 – List of participants

List of participants "Common Concern for the Arctic", NCM Conference in Ilulissat, 9–10 September 2008

Last name	First name	Title	Organisation/Country
Ásgrímsson	Halldór	Secretary General	Nordic Council of Ministers
Agerup	Mette	Assistant Director	Ministry of Oil and Energy, Norway
Airoldi	Adele	Consultant	Milieu Ltd., Belgium
Artieva	Alexandra	Member of Board OOSMO	Public organization of Saami of the Murmansk area, Russian Federation
Arvidsson	Karin	Head of Department	Nordic Council of Ministers
Baldursson	Ragnar	Senior Offical for Arctic Affairs	Ministry for Foreign Affairs, Iceland
Bianco	Nauja	Secretary to the Embassy	Greenland Representation in Brussels
Bock	Nikolaj	Senior Adviser	Nordic Council of Ministers
Borg	Joe	European Commissioner	DG Maritime Affairs and Fisheries, European Commission
Brännström	Malin	Legal Advisor	National Union of the Swedish Sámi People
Bukin	Dimitry	Head of Regional Cooperation Unit	Ministry of Foreign Affairs, Russian Federation
Carlson	David	Director	International Polar Year Programme Office
Corell	Hans	Ambassador	Former Under-Secretary-General for Legal Affairs of the United Nations, Sweden
Cunha	Tiago Pitta e	Member of Commissioner's cabinet	DG Maritime Affairs and Fisheries, European Commission
Cunningham	Kristina	Press Secretary	Ministry of Health & Social Affairs, Sweden
Czarnecki	Ralph	Senior Fellow	Institute for International and European Environmental Policy
Degnbol	Poul	Adviser - Scientific Matters	DG Maritime Affairs and Fisheries, European Commission
Dux	Thomas	Policy Officer	DG Maritime Affairs and Fisheries, European Commission
Egerton	Paul	Executive Director	European Polar Board
Felixson	Tryggvi	Head of Department	Nordic Council of Ministers
Fenge	Terence	Senior Policy Advisor	Arctic Athabaskan Council, Canada
Fredsgaard	Karen	Advisor	Cabinet of the President, European Parliament
Garces de los Fayos	Fernando	International Relations Officer	DG External Relations, European Commission
García de Lara	Mª Ángeles	Consul	Ministry of Foreign Affairs, Spain
Gibbard	Paul	Director, Aboriginal and Circumpolar Affairs	Foreign Affairs and International Trade, Canada
Gourley	Julie	Senior Arctic Official	Department of State, United States of America
Gran	Anna	Adviser	Nordic Council of Ministers
Hammond	Aleqa	Minister for Nordic Cooperation	Greenland Home Rule Government

Last name	First name	Title	Organisation/Country
Hard	Jakob Rohmann	Department of Foreign Affairs	Greenland Home Rule Government
Harkess	Linn	Programme Manager	Europeaid, European Commission
Hayes	Joseph	Ambassador	Ministry of Foreign Affairs, Ireland
Henningsen	Juliane	Member of Danish Parliament, Greenland Representative	Standing Committe of Parliamentarians of the Arctic Region, Greenland
Herman	Janos	Principal Adviser, Deputy Political Director	DG External Relations, European Commission
Hynková	Jana	Counsellor, Deputy Head of Mission	Ministry of Foreign Affairs, Czech Republic
Haarder	Bertel	Minister for Nordic Co-operation	Ministry of Education, Denmark
Janukonis	Marius	Director	Ministry of Foreign Affairs, Lithuania
Jensen	Peter Munk	Head of Department	Ministry of Foreign Affairs, Denmark
Jensen	Louise	Assistant	Nordic Council of Ministers
Jianguo	Xiao	Adviser Chinese Arctic Administration	Ministry of Foreign Affairs, People's Republic of China
Kallio	Jyrki	Senior Arctic Official	Ministry for Foreign Affairs, Finland
Karlsson	Åsa-Britt	State Secretary	Ministry of the Environment, Sweden
Kleist	Paornánguaq	Communication Department	Greenland Home Rule Government
Kristjánsson	Kristján	President of the International Arctic Science Committee	Director of Research Services, Reykjavik University, Iceland
Kristoffersen	Asmund	Member of parliament/Norway	Nordic Council
Kullerud	Lars	President	University of the Arctic
Kuster-Menager	Aline	Deputy Head of International Affairs	Ministry for Ecology, Energy, Sustainable Development and Regional Development, France
Köhler	Michael	Head of Unit, International Affairs and Law of the Sea	DG Maritime Affairs and Fisheries, European Commission
Larsonneur	Jean Charles	Interpreter	France
Lennert	Lida Skifte	Head of Department	Ministry of Foreign Affairs, Greenland
Lipiatou	Elisabeth	Head of Unit - Climate change and environmental risks	DG Research, European Commission
Loidl	Thomas	Head of Unit Environmental Law	Ministry of Foreign Affairs, Austria
Lynge	Aqqaluk	President	Inuit Circumpolar Council, Greenland
Madsen	Jesper	Director of Department	National Environmental Research Institute, Denmark
McGlade	Jacqueline	Director	European Environment Agency
McSwiney	Morgan	Administrator	Policy Planning & Early Warning Unit, Secretariat of the Council of the European Union
Melin	Annika Ström	Journalist	Sweden
Mitchell	Andrew	Ambassador	Ministry of Foreign Affairs, United Kingdom
Maasikas	Matti	Secretary General	Ministry for Foreign Affairs, Estonia
Nakling	Ragnhild J.	Higher Executive Officer	Ministry of Foreign Affairs, Norway

Last name	First name	Title	Organisation/Country
Navarra	Antonio	Director	Centro Euro-Mediterraneo per Il Cambiamenti Climatici, Italy
Norokorpi	Yrjö	Area Manager	Natural Heritage Services of Metsähallitus, Finland
Nystø	Sven-Roald	Special Adviser	Árran Lulesami Centre and The Sami Institutions Network on High North Affairs, Norway
Oftedal	Eline	Adviser, International Department	The Norwegain Parliament
Ólafsdóttir	Snjólaug	Director General	Ministry for Foreign Affairs, Iceland
Olsen	Nivi	Personal Secretary to Minister for Finance and Foreign Affairs	Greenland Home Rule Government
Paleologu	Theodor	Ambassador	Ministry of Foreign Affairs, Rumania
Pedersen	Tove	Head of Representation	Greenland Representation in Denmark
Prokosch	Peter	Managing Director	UNEP-GRID/Arendal
Quincy	Bérengère	Ambassador	Ministry of Foreign Affairs, France
Rasmussen	Rasmus Ole	Senior Research Fellow	Nordic Centre for Spatial Development
Reuterswärd	Ida	Desk Officer, Division for International Affairs	Ministry of the Environment, Sweden
Rouam	Claude	Head of Unit, Enlargement and Neighbouring countries	DG Environment, European Commission
Røys	Heidi Grande	Minister of Nordic Cooperation	Ministry of Renewal & Administration, Norway
Samsing	Ole	Chief Consultant	Ministry of Foreign Affairs, Denmark
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Sulyandziga	Pavel	First Vice-President	Russian Association of Indigenous Peoples of the North
Svinth	Dorthe Elise	Head of Office of the Secretary General	Nordic Council of Ministers
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Søndergård	Jørgen	Senior Adviser	Greenland Representation in Copenhagen

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Thostrup	Lars	Director	Nordic Atlantic Cooperation
Tiedemann	Johan	State Secretary	Ministry of Health & Social Affairs, Sweden
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Vapaavuori	Jan	Minister for Nordic Co-operation	Ministry of the Environment, Finland
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Yim	Geung-yeng	Ambassador	Ministry of Foreign Affairs, Republic of Korea
Zunda	Eriks	Parliamentary Secretary	Ministry of Foreign Affairs, Latvia
Ödmark	Helena	Ambassador	Ministry for Foreign Affairs, Sweden

Annex 4 – Participating media

- Agence France Presse
- Deutsche Welle Radio
- Europe by Satellite
- Frankfurter Allgemeine Zeitung
- Greenland - The Premier's Office, Section of Information
- Greenland Broadcasting Company (KNR) - Avannaa (Ilulissat)
- Ritzau (Danish News Agency)
- SIPA Press
- Swedish Radio (SR)
- The Swedish public service broadcaster (SVT), Aktuellt/Rapport
- Zweites Deutches Fernsehen (ZDF)

Annex 5 – Conference Essentials

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Developments in the Arctic are increasingly a subject for political dialogue and policy discussion in global and regional fora and within individual states. There is an obvious need for coordinated international action to meet the many challenges facing the Arctic region due to globalization and climate change. It is a fact that the rest of the world is affected by the consequences of melting ice in the Arctic. To address these issues, the Nordic Council of Ministers hosted an Arctic Conference in Ilulissat, Greenland on 9–10 September 2008 with the theme: Common Concern for the Arctic. The Conference was attended by representatives of the Nordic Countries, the member countries of the European Union, The EU-Commission and the EU-Parliament, USA, Russia, China and Korea.

The Conference provided a forum for exchange of views on activities and policies, pursued by individual states and in particular the European Union, that are of importance for or that directly affect developments in the Arctic region. The Conference aimed at raising awareness of the new challenges and opportunities that are a result of changing environmental, economic and social conditions in the Arctic region. The Conference addressed the role of circumpolar and regional cooperation in the implementation of governmental and EU policies and the need to enhance synergies in order to improve consistency and avoid overlapping activities.

The conference proceedings and the Chairman's conclusions are included in this conference report. The Nordic Council of Ministers encourages all relevant stakeholders to take note of the messages from the conference and act accordingly.

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