Committee of Senior Officials
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Arctic climate change:
Policy measures relevant for the Barents Region

At the BEAC 9th session in Umeå in October 2003 the Barents Euro-Arctic Council

> ..... *Noted* that climate change will have profound ecological consequences in this Region, with effects on human health, biota, infrastructure and economic activities like sea and land transport, forestry, fisheries, hunting and reindeer husbandry. The Council *requested* the CSO to elaborate specific policy measures relevant for the Barents Region on the basis of the report from the *"Arctic Climate Impact Assessment (ACIA)"*, that will be presented to the Arctic Council in September, 2004[2].

Responding to this request, the CSO has elaborated the attached proposal, based on the structure of the ACIA policy recommendations adopted by the Arctic Council. The proposal contains a list of suggested measures for the Barents Euro-Arctic Region, some already ongoing, in the following policy areas:

- Mitigation
- Adaptation
- Research, observation, monitoring and modelling
- Outreach

The CSO recommends Ministers to adopt the proposed list of measures and also to direct the CSO to ensure that BEAC working groups and task forces take the findings of the ACIA report into account in the context of their activities and that they make necessary adjustments in their working priorities, as appropriate. The CSO also recommends the issue to be raised with the Barents Regional Council, its members and subsidiary bodies in order to provide for enhanced information exchange on matters relevant to climate change in the Region, and also to involve them in the follow-up of the proposed measures in areas within their field of competence.

The text of the Arctic Council's policy document is attached for easy reference and comparison.

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1 Conf. doc.BEAC.CSO.2005.6.Rev.4. Cleared by the CSO by silence procedure on 17 October 2005.
2 The report was presented to the Arctic Council on 24 November 2004.

Barents Euro-Arctic Council

A warming Arctic
Policy measures relevant for the Barents Region

Introduction

The Arctic Council on 24 November 2004 endorsed a set of policy recommendations based on the report of the Arctic Climate Impact Assessment (ACIA). In the overview document of the ACIA the following key findings were presented. All are of very high relevance to the Barents Euro-Arctic Region:

1. The Arctic climate is now warming rapidly and much larger changes are projected.
2. Arctic warming and its consequences have worldwide implications.
3. Arctic vegetation zones are projected to shift, bringing wide-ranging impacts.
4. Animal species' diversity, ranges, and distribution will change.
5. Many coastal communities and facilities face increasing exposure to storms.
6. Reduced sea ice is very likely to increase marine transport and access to resources.
7. Thawing ground will disrupt transportation, buildings, and other infrastructure.
8. Indigenous communities are facing major economic and cultural impacts.
9. Elevated ultraviolet radiation levels will affect people, plants, and animals.
10. Multiple influences interact to cause impacts to people and ecosystems.

In responding to climate change, the world community has two sets of actions available to it: *mitigation* and *adaptation*. Mitigation covers actions to slow the speed and amount of future climate change by reducing greenhouse gas emissions and increase their absorption by absorbents (also called “sinks”). Adaptation covers actions to attempt to limit adverse impacts by becoming more resilient to the climate changes that will occur while mankind pursues the first set of actions. Both mitigation and adaptation have profound political and practical ramifications. The problem requires extensive communication, education and participation within the society.

The Barents Euro-Arctic Region, with its population of approximately 6 million, advanced infrastructure, diversified landscapes and habitates, is an important region within the Arctic and sub-Arctic area. Policy measures relevant for the Barents Region must be seen in light of, and closely correlated with, the overall global effort, and especially with the activities of the Arctic Council.

The present document represents a first attempt at defining and integrating the Arctic climate issue into the political and practical work in the Barents Region.

Mitigation measures in the Barents Euro-Arctic Region

Even though overall emissions of greenhouse gases within the Barents Region are limited[3], there are important mitigation opportunities that would contribute to global emission reduction efforts. The Region is from the outset an important carbon sink, in the form of forests and other surface vegetation, and carbon trapped in moors and by permafrost. In addition to carbon dioxide, several other climate gases (e.g. methane) are trapped in a similar way[4].

With regard to mitigation, BEAC Member States will pursue the following measures relevant for the Barents Region in the period 2006-2010:

- Continue the promotion of more efficient energy use, renewable energy production and emerging technologies. Promote the further dissemination and application of cleaner production strategy and methods and the best available technology at enterprises within the Barents Euro-Arctic Region, as well as broad conversion, whenever possible, to renewable and alternative fuel sources.

- Identify Barents environmental *hot spots* projects of direct relevance to energy savings, use of alternative energy sources or other CO_2 emission reduction measures, and seek their effective implementation, inter alia with the assistance of the Barents Hot Spots Facility.

- In cooperation with BASREC identify and seek effective implementation of climate gas emission reduction measures, inter alia with financial support from the Testing Ground Facility, cf. Agreement on a Testing Ground for application of the Kyoto mechanisms on energy projects in the Baltic Sea Region, signed in Gothenburg on 29 September 2003[5].

- Continue and expand programmes that conserve and enhance carbon reservoirs, such as the protection of forests, actively increasing forest growth potential, and the protection of bogs, moors and other carbon sinks and permafrost areas against further degradation. Measures should include measures with regard to forest fire control, forest pest control, illicit forest harvesting and timber trade. Similarly, further support should be provided to programs and projects on development of the region's network of specially protected nature territories (natural parks, closed forests, nature reservations, etc.), as well as to the conservation of biodiversity and natural heritage objects.

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[3] Most power needs are satisfied by hydropower or nuclear energy.

[4] Dihydrogenoxide (water vapour) is not included in the list of greenhouse gases in Annex A to the Kyoto Protocol. However, the Barents Region, similar to the rest of the Arctic and Sub-Arctic areas (and the world), is subjected to the strong effects also of this climate relevant gas. The condensation and crystallisation/fallout (precipitation) of dihydrogenoxide from the atmosphere are many times higher than evaporation and sublimation of this matter in the Region.

[5] The Russian Federation will be ready to consider its possible accession to the Agreement on a Testing Ground for application of the Kyoto mechanisms on energy projects in the Baltic Sea Region when the work on elaborating the national Russian legislation for implementation of the Kyoto Protocol provisions has been completed.

Adaptation measures in the Barents Euro-Arctic Region

Scientific data strongly suggest that climate change is inevitable and that adaptation is needed. Adaptation to climate change and its impacts must take into account the especially sensitive and vulnerable natural and human systems of the Region. Special attention needs to be paid to strengthening the adaptive capacities of its residents.

Consequently, authorities should work closely with the citizens, including indigenous and local communities, to help them to adapt to and manage the environmental, economic and social impacts of climate change (and ultraviolet radiation change).

Adaptation needs will vary. Residents of the Barents Euro-Arctic Region may need, *inter alia,* enhanced access to information, decision makers, and institutional capacity building to safeguard their health, culture and well-being.

With regard to adaptation, BEAC Member States will pursue the following measures relevant for the Barents Region in the period 2006-2010:

- Identify and seek effective implementation of measures to limit negative climate impact on local communities and traditional activities, including those of the indigenous peoples. A particular emphasis should be made on measures to counteract negative impacts on human health.

- Identify and seek effective implementation of measures to counteract increased flooding in river systems, including efforts to predict floods. Measures should include cooperation on regional level in the field of flood control, monitoring and protection. Similarly, emphasis should be made on measures to counteract increased coastal erosion.

- Identify and seek effective implementation of measures to address the issue of shifting vegetation zones and to preserve a variation of vegetation zones, including the possible suppression of unwanted species. In this respect, emphasis should also be made on measures to counteract increasing insect outbreaks.

- Identify and seek effective implementation of measures to counteract the effects of thawing permafrost on buildings, roads and other infrastructure.

- Continue and strengthen cooperation between emergency and rescue services, including in the field of climate induced calamities, forest fires, storms, floods etc.

Research, Observations, Monitoring and Modelling in the Barents Euro-Arctic Region

Without coming into conflict with research, observations, monitoring and modelling activities globally and in an Arctic context, the Barents cooperation should focus on those research etc. needs and efforts that play a significant role in developing and applying mitigation and adaptation measures in the Region.

In view of its relatively large population, extensive infrastructure and other factors, a need exists to increase joint efforts to expand research activities, monitoring, modelling and forecasting climate change and its consequences for the Barents Euro-Arctic Region.

With regard to research, observation, monitoring and modelling, BEAC Member States will pursue the following measures relevant for the Barents Region in the period 2006-2010:

- Encourage intensified natural and social science research on climate related issues, at research institutions in the Region, and encourage the securing and strengthening of existing research and monitoring networks, including in the field of biodiversity. Fields of activities should include research of recurrence and intensity of extreme hydrometeorological phenomena connected with climate change in the Region, with the possibility of developing an early detection and forecasting system for dangerous weather and climate phenomena in order to take measures on protecting human lives and limiting damage.

- Launch together with other partners, a programme for a more detailed assessment of the possible economic and environmental impacts of climate change in the Barents Euro-Arctic Region, including the increased potential for natural resources explotitation and use of Arctic sea routes, the environmental risks of potentially increasing economic activity, and economic impacts of infrastructure damage.

- Request and encourage relevant national and international research bodies and sponsors to take into account Barents specific science needs in their programmes.

- Encourage the provision of relevant data from research, observation, monitoring and modelling activities to local and regional authorities and research institutions and to ensure the availability of relevant regional/local data for research and political decision-making.

Outreach efforts in the Barents Euro-Arctic Region

In order to ensure regional and local awareness of the threats and challenges associated with a warming Arctic, BEAC Member States will pursue the following measures relevant for the Barents Region in the period 2006-2010:

- Develop a dissemination strategy for climate change infomation in order to strengthen cooperation on the economic, environmental and social ramifications of climate change in the Region. Encourage the holding of information seminars at various levels and for diverse audiences. Stimulate the discussion of climate change issues in the context of activities relevant to the economic and social sectors, with regional administrations, business partners and other stakeholders in the Region.

- Encourage the early incorporation of materials from the ACIA into educational, research and training programmes at learning and scientific institutions in the Region.

Arctic Climate Impact Assessment

Policy Document

Issued by the Fourth Arctic Council Ministerial Meeting
Reykjavík, 24 November 2004

The Arctic Council is a high-level, intergovernmental forum comprised of eight Member States (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States) and six Permanent Participants (Arctic Athabaskan Council, Aleut International Association, Gwich'in Council International, Inuit Circumpolar Conference, Russian Association of Indigenous Peoples of the North and the Saami Council) representing Arctic indigenous communities. The Arctic Council provides a mechanism to address the common concerns and challenges faced by the Arctic governments and people of the Arctic. In the last several years, the issue of climate impacts in the Arctic has been the subject of increased concern, as reflected in the Arctic Council's sponsorship, together with the International Arctic Science Committee, of the Arctic Climate Impact Assessment, the first comprehensive regional assessment of climate impacts [http://www.amap.no/acia/index.html]. Arctic Council Member States are committed to exercising leadership within the Arctic and globally to address the sources and multiple Arctic impacts and consequences of climate change and ultraviolet radiation, in accordance with the UNFCCC, as well as the Barrow and Inari Arctic Council Ministerial declarations.

Ministers of the Arctic Council meeting in Reykjavik, Iceland in November 2004 addressed the matter of Arctic climate change and variability as follows:

Welcome with appreciation the Arctic Climate Impact Assessment (ACIA) and the scientific work completed in evaluating and synthesizing knowledge on climate variability and change and increased ultraviolet radiation in the Arctic,

Note with concern the impacts documented by the ACIA that are already felt throughout the region. Climate change, and other stressors, presents a range of challenges for Arctic residents, including indigenous peoples,[6] as well as risks to Arctic species and ecosystems,

Recognize that the Arctic climate is a critical component of the global climate system with worldwide implications,

Note the findings of the ACIA with respect to climate change and **acknowledge** that such findings, as well as the underlying scientific assessment, will help inform governments as they implement and consider future policies on global climate change,

Endorse the ACIA policy recommendations for mitigation, adaptation, research, monitoring and outreach contained in the SAO Report to Ministers,

Acknowledge the need to consider the findings of the ACIA and other relevant studies in implementing their commitments under the UNFCCC and other agreements, including through adoption of climate change mitigation strategies across relevant sectors,

Encourage Member States to take effective measures to adapt to and manage the environmental, economic and social impacts of climate change and ultraviolet radiation, *inter alia* through enhancing the access of Arctic residents to information, decision makers and institutional capacity building,

[6] The United States notes that the use of the term "peoples" in this policy document shall not be construed as having any implications as regard the rights which may attach to the term under international law.

Encourage relevant national and international research bodies and sponsors to take into account the ACIA science recommendations in the planning, development and implementation of their programmes,

Decide to promote global, national and local awareness of the ACIA and any follow up activities through appropriate outreach activities,

Acknowledge the need to further organize the work of the Arctic Council and its subsidiary bodies based on the findings of the ACIA and direct the SAOs to report on the progress made at the 2006 Ministerial Meeting.

Senior Arctic Officials of the Arctic Council reported to Ministers on the work on the climate impacts carried out by the Arctic Council during Iceland's Chairmanship in response to the Minister's declarations at the October 2002 Ministerial Meeting in Inari, Finland. The text of their report is as follows:

BACKGROUND

The Barrow Ministerial Meeting of the Arctic Council in October 2000, endorsed, adopted, and established the Arctic Climate Impact Assessment (ACIA), requesting it to "evaluate and synthesize knowledge on climate variability and change and increased ultraviolet radiation, and support policy-making processes and the work of the Intergovernmental Panel on Climate Change (IPCC); further request that the assessment address environmental, human health, social, cultural and economic impacts and consequences, including policy recommendations."

Since then, a team of more than 300 leading Arctic researchers, indigenous representatives and other experts from fifteen nations has completed its work on the ACIA. They have distilled and synthesised available scientific information, traditional knowledge, and indigenous perceptions in order to examine how climate and ultraviolet radiation have changed in the Arctic, how they are projected to change in the future, and what the consequences of these changes will be for the Arctic and the world. The full assessment is published in a comprehensive science report and synthesised in an overview document "Impacts of a Warming Arctic", designed to be accessible to the lay person and the policy maker. The documents have been reviewed by more that 160 independent scientists and experts and made available to national reviews. Comments were taken into account by authors, who assume responsibility for the final document.

Ministers of the Arctic Council Meeting in Inari in October 2002 welcomed with appreciation the good progress of the ACIA and emphasized "the importance of continued dialogue on the consequences of climate change and on policy measures among national governments, indigenous and other local communities, regional administrations, the business community and scientific experts with the aim for a transparent and open process, and of enhancing early capacity building to mitigate and adapt to the effects of climate change".

Since Inari, Senior Arctic Officials (SAOs) and representatives of the Permanent Participants have met with climate experts in Svalbard, Nuuk and The Hague to discuss the scientific findings of the ACIA and to further the dialogue among the Arctic states and others on climate change.

The Arctic Monitoring and Assessment Programme (AMAP), the Conservation of Arctic Flora and Fauna (CAFF) and the International Arctic Science Committee (IASC) participated in the ACIA Steering Committee. AMAP and CAFF were the conveners of a drafting group of representatives from Arctic Council Member States and Permanent Participants, that produced early drafts of recommendations to relate the findings from ACIA to the policy needs of the Arctic Council. SAOs then assumed responsibility for the drafting of these policy recommendations.

The ACIA is the world's most comprehensive and detailed regional climatic and ultraviolet radiation assessment to date and documents impacts that are already felt throughout the Arctic region. Climate change, together with other stressors such as ultraviolet radiation, presents a range of challenges for human health, culture and well-being of Arctic residents, including indigenous peoples and communities, as well as risks to Arctic species and ecosystems.

The authors of the overview document of the ACIA identified the following ten key findings:

1. The Arctic climate is now warming rapidly and much larger changes are projected.
2. Arctic warming and its consequences have worldwide implications.
3. Arctic vegetation zones are projected to shift, bringing wide-ranging impacts.
4. Animal species' diversity, ranges, and distribution will change.
5. Many coastal communities and facilities face increasing exposure to storms.
6. Reduced sea ice is very likely to increase marine transport and access to resources.
7. Thawing ground will disrupt transportation, buildings, and other infrastructure.
8. Indigenous communities are facing major economic and cultural impacts.
9. Elevated ultraviolet radiation levels will affect people, plants, and animals.
10. Multiple influences interact to cause impacts to people and ecosystems.

Such findings, as well as the underlying scientific assessment, will help inform governments as they implement and consider future policies on global climate change.

ARCTIC CLIMATE POLICY ACTIONS

In responding to climate change, Member States are taking two sets of actions: mitigation and adaptation. Both kinds of actions require extensive communication and education about climate change and its impacts. Further research, observations, monitoring and modelling is needed to refine and extend the ACIA findings.

Mitigation

To address the risks associated with climate change in the Arctic of the magnitude projected by the ACIA and other relevant studies, timely, measured and concerted action is needed to address global emissions. Even though overall emissions of greenhouse gases within the Arctic region are limited, there are important mitigation opportunities in the region that would contribute to sustainable development and global emission reduction efforts.

Mindful of their countries' share in total global greenhouse gas emissions, SAOs, taking into account specific national circumstances, recommend to Ministers that the Member States:

- *Consider* the findings of the ACIA and other relevant studies in implementing their commitments under the UNFCCC and other agreements.

- *Adopt* climate change mitigation strategies across relevant sectors. These strategies should address net greenhouse gas emissions and limit them in the long term to levels consistent with the ultimate objective of the UNFCCC, integrating mitigation and adaptation measures, building on partnerships, and, where synergies are possible, addressing other social, economic and environmental issues.

- *Promote* the development and adoption of appropriate energy sources, uses, technologies and efficiencies. The International Partnership for Hydrogen Economy (IPHE) and The Carbon Sequestration Leadership Forum (CSLF), together with initiatives to promote renewable energy production and more efficient energy use, are examples of relevant initiatives.

- *Adopt* policies and programmes that conserve and enhance carbon sinks and reservoirs in accordance with the principles of sustainable development.

Adaptation

While mitigation is necessary to address the risks associated with climate change, the scenarios used by the ACIA and elsewhere project that some climate change is inevitable, indicating that continued adaptation is needed.

Adaptation to climate change and its impacts in the Arctic must take into account the especially sensitive and vulnerable natural and human systems of the region. Special attention needs to be paid to strengthening the adaptive capacities of Arctic residents. Recognizing that not all impacts of climate change can be properly addressed through adaptation, the SAOs recommend to Ministers that the Member States:

- *Work* closely with Arctic residents, including indigenous and local communities, to help them to adapt to and manage the environmental, economic and social impacts of climate change and ultraviolet radiation change. Adaptation needs will vary. Arctic residents may need *inter alia* enhanced access to information, decision makers, and institutional capacity building to safeguard their health, culture and well-being.

- *Recognize* that opportunities related to climate change, such as increased navigability of sea routes and access to resources, should be developed and managed in a sustainable manner, including through the consideration of environmental and social impacts and taking appropriate measures to protect the environment, local residents and communities.

- *Implement*, as appropriate, adaptive management strategies for Arctic ecosystems, making use of local and indigenous knowledge and participation, review nature conservation and land and resource use policies and programmes, and to the extent

possible reduce risks related to infrastructure damage, permafrost degradation, floods and coastal erosion, taking into account costs and benefits.

Research, Observations, Monitoring and Modelling

The authors of the ACIA have made recommendations for additional research, observations, monitoring and modelling. It is of particular importance to focus on those research needs that play a significant role in developing and applying mitigation and adaptation measures.

Therefore, the SAOs recommend to Ministers that the Member States:

- *Stress* the importance of intensifying natural and social science research on impacts and adaptation, including studies to enhance understanding of fundamental processes and sustainability, procedures for integrating indigenous and local knowledge into scientific studies, and partnerships between indigenous peoples, local communities, and scientists in defining and conducting research and monitoring associated with Arctic climate and ultraviolet radiation changes.

- *Encourage* relevant national and international research bodies and sponsors to take into account the ACIA science recommendations in the planning, development and implementation of their programmes.

- *Seek* to expand and link circumpolar research and monitoring networks, including community-based networks, applying standardized methodologies focusing on year round observations of climate and ultraviolet radiation and their impacts on species and ecosystems, residents and communities, stressing seasonal variations. Given its international character and potential global significance, the Arctic ocean, its ice and atmosphere, are of special importance.

- *Seek* to ensure that relevant data from research, observation, monitoring and modelling activities are made available to local, national and international research and monitoring programmes.

- *Recognize* the need to consider how to conduct further studies of climate change within the Arctic region, especially through added focus on regional and climate variability, socio-economic impacts, vulnerabilities of Arctic human-environment systems, climate modelling, and use of historical and long-term data on climate variability.

Outreach

In order to ensure global, national and local awareness of the ACIA and any follow up activities, the SAOs recommend to Ministers that the Member States:

- *Disseminate* the ACIA documents within international fora in order to advance co-operation to address the environmental, social, economic and cultural implications of climate change in the Arctic.

- *Promote* the ACIA at the national and local level and explore the use of a variety of methods, languages and partners to engage Arctic residents.

- *Seek* to provide Arctic residents and communities with information and knowledge on climate research and monitoring that they require to adapt to Arctic climate change, including taking advantage of new opportunities.

- *Encourage* the incorporation of materials from the ACIA into educational, research and training programmes.

THE ROLE OF THE ARCTIC COUNCIL

Based on the findings of the ACIA, there is a need for the Arctic Council and its subsidiary bodies to further organize their work. Therefore, SAOs recommend to Ministers to:

- *Direct* relevant technical working groups of the Arctic Council to review the scientific chapters of the ACIA in the context of their ongoing and future work programmes and to report on the progress made at the 2006 Ministerial Meeting.

- *Decide* to keep under review the need for an updated assessment of climate change in the Arctic, drawing *inter alia* on the IPCC fourth assessment report and the results of the International Polar Year 2007-2009.

- *Direct* SAOs to nominate a focal point, to be responsible for an ACIA follow up, including an assessment of gaps in knowledge.

- *Communicate* as appropriate, any Arctic Council ACIA follow-up actions to the Conference of the Parties to the UNFCCC.

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