**New bombing ranges and their impact on Saami traditions**

The Saami Parliament and local reindeer herders are protesting against Norwegian and NATO plans to expand bombing exercises in the traditional summer ranges of Halkavarre, northern Norway. Halkavarre has been used for hundreds, perhaps thousands of years as summer and calving grounds for reindeer, and also contains numerous ancient Saami sacred sites including siefditt (stones where gifts and sacrifices were laid down) and álida and salivi (sacred hills). The Saami Parliament has raised the issue with the UN International Labour Organization (ILO)-convention and with the UN High Commissioner on Human Rights (UNHCHR).

By CHRISTIAN NELLEMANN AND INGUNN VISTNES

Blue fiords, snow covered mountain tops, and early blossoming flowers are the first sights that reindeer calves see when they are born in spring on the ranges of Halkavarre in northern Norway. These ranges have been used by the Saami herders for hundreds of years. However, the region is also one of the few areas in Europe which provides opportunities for low-level flying training and combined military exercises involving ground, air and naval forces. Testing of missile systems by Norwegian and allied forces has also been proposed for the area.

Not a new conflict

Over the years there have been many disputes between the local Saami people and military and government authorities, and relationships have often been characterized by extended legal proceedings. The last formal agreement between the parties on the extent of military exercises in the traditional summer ranges of Halkavarre, northern Norway, has raised the issue with the UN International Labour Organization (ILO)-convention and with the UN High Commissioner on Human Rights (UNHCHR). Mr. Anders S. Utsi, a reindeer herder, protests strongly. “It is worst for our children. Many feel uncertain and are frightened, asking us what will happen to them if they will not be able to live their lives with the reindeer and the land.” Eira goes on to express her commitment to fight for their right to continue their lifestyle in the lands where they have always lived.

**The consequences of new military agreements**

However, the needs of the defence forces appear to be changing. Recently, Kristin Krohn Devold, the Norwegian Minister of Defence agreed to the location of a new NATO command centre in Jåttå, southern Norway. At the same time a practice bombing range was closed in the south, increasing the motivation to find new practice areas in the north.

CONTINUED ON PAGE 2
Welcome to the Polar Environment Times!

Last year saw the first edition of the Arctic Environment Times. This year it has been renamed the Polar Environment Times to reflect the incorporation of contributions received from the southern latitudes. By STEINAR SØRENSEN AND THE TIMES EDITORIAL TEAM

The Arctic and Antarctic have many similarities as mentioned in the contributions – most particularly as sensitive indicators of global climate change. The disintegration of the Larsen Ice Shelf on the Antarctic Peninsula that has been proceeding over the last few years has been mirrored most recently in the breakup of the Arctic’s largest marine ice shelf, the Ward Hunt in northern Canada.

The Arctic also stands in contrast to the Antarctic in that it has a permanent human population that calls it home. Many of the contributions in this edition reflect in particular the perspectives of Arctic indigenous peoples, and this continues to be a priority for us at GRID-Arendal. We were especially pleased to be able to host a seminar in Arendal in September with the participation of a number of indigenous representatives, the Indigenous People’s Secretariat, and the Chair of the Arctic Council, and note that a number of the articles appearing here were generated from the vibrant discussions that took place.

The Arctic remains high on the political agenda, as can be seen from our Ministerial correspondents who write cogently about a range of Arctic issues. The recent expedition to Svalbard hosted by the Norwegian Minister for the Environment, Børge Brende, has had a visceral impact on the participants. The will to make real progress on the Arctic environment and sustainable development issues exists now perhaps as never before.

The issues are real and daunting; the impacts of climate change and pollution on ecosystems and humans; the unsustainable and damaging exploitation of natural resources; the fragmentation of habitats; and threats to traditional ways of life from the development of infrastructure; and, of course, pressures. New issues are also arising and it is the intent of the Polar Environment Times to provide a canvas for all stakeholders to voice their concerns and perspectives.

GRID-Arendal wholeheartedly thanks the contributors to this edition of the Polar Environment Times, and invite our readers to provide feedback and to read more articles on our web site, www.grida.no/environmenttimes.

We look forward to continuing our work representing UNEP in the polar regions and working in cooperation with our Arctic and Antarctic stakeholders.

Cheers!

STEINAR SØRENSEN is the Managing Director of GRID-Arendal. The TIMES EDITORIAL TEAM comprises of ACKNOWLEDGEMENTS: MARCELLA E. JOHNSON, Polar Environment Times co-editor, and leader of the Arctic Indigenous Peoples’ Programme; MARIANNE HANET, Media and Information Officer; CHRISTIAN NIELSEN who leads the Global Methodology for Mapping Human Impacts on the Biosphere (GHMIB) initiative; TIRGJ BAKKEVIKT, Manager for the Global Environment Facility (GEF) project for the conservation of biodiversity in the Russian Arctic; AND KATRINE FOLKELAND, Polar Programme Manager.

CONTINUE FROM PAGE 1

Press releases from the Ministry of Defence on June 12th and 23rd 2003, suggest that an increase in allied training exercises will accompany the new NATO command center.

Feelings among the Saami people and representatives are running high. “Norway offers traditional Saami reindeer herders to NATO for bombing purposes totally without consultation and approval”, says Sven-Roald Nystad, president of the Saami Parliament. Ragnar Nystad, vice-president of the Saami Parliament adds: “Completely unacceptable without any agreement with the Saami people. Sacred sites must be left in peace and it is verbatim disrespectful to the Saami people to do this”, a message conveyed also by Samuel John N. Anti, chief of the local herrer district.

“NATO has never bombed or will target any location with religious or sacred sites. We only address strictly military targets. That also applies to training and exercises, of course, and we trust that the commanders do the same. We would be most opposed to any such thing”, says Francois Le Blavenec, press officer at NATO, Brussels.

In Norway, the response to the issues being raised by UENI officials by the Saami is measured: “We do not consider this a formal complaint to UNCHRO and not thus legally binding in any way”, says Erik Berger, spokesman for the Norwegian Ministry for Foreign Affairs. “Besides, in order to have any legal effect, the Saami will need to have exhausted military channels – including all court systems – before they can complain. Norway supports the ILO Convention and works internationally to support indigenous rights. But we were not aware that any sacred or religious sites were involved in the existing or proposed bombing runs”, he says.

Unparalleled pinseekoral development can be devastating

In addition to the concerns raised by expanding military exercises, there are significant issues about increased private and public sector development in the Barents region, and the impacts this may have on the Saami people. Some studies suggest that over one third of the traditional lands – used for reindeer grazing over thousands of years – may already be lost due to piecemeal development of roads, powerlines, dams and recreational cabins. By 2050 – in a scenario of unregulated development lasting another 50 years – as much as 78 percent of the vital coastal summer grounds may no longer be viable for reindeer herding. The special opening of the Barents Sea for full oil exploration also has the potential to contribute to coastal development and provoke further disputes over land use. Similar conflicts between development and the chosen lifestyles of indigenous people arise throughout the Arctic. The Nenet people in the Yamal Peninsula of Russia are being affected by oil and gas exploration and development, and similar issues arise in Alaska and much of northern Canada. Indigenous peoples have often fought against – but have also sometimes suc- cessfully cooperated with - multinational power and oil companies.

While protocols are developed to address climate change issues, the issues of military activities and pinseekoral development conflicting with traditional lifestyles remains one of the great unexplored policy gaps in the Arctic. Without facing up to these issues, hope will dwindle for many who wish to live with the land as hunters or herders.

CHRISTIAN NIELSEN is a Senior Associate in the GRID-Arendal Polar Programmes, and is working on a report on the prospects for the Saami people and their traditional lifestyles in the Barents region. The report will be released in the spring of next year. ENVIORMENT TIMES is published by the Department of Ecology and Natural Resource Management at the University of Oslo, in collaboration with the University of Norway. She has conducted research in the polar regions with emphasis on development, indigenous peoples and sustainable natural resources and democratic governance.

The Arctic – a new victim of global development?

The vision of the Arctic before the global community is a contradictory one. While on the one hand it seems as the last frontier – a limitless, rich environment that can be exploited for commercial gains – it is also seen as an unspoiled area of pristine beauty, which can and should be preserved in all its glory. By SVEN TVEITDAL

The Arctic is both rich and extremely vulnerable – rich in natural resources such as timber, oil, gas, minerals and fish. Vulnerable since these resources are getting increasingly attractive to in- dustry, consumers and decision makers located far beyond the Arctic.

Resource exploitation is already creat- ing environmental hot spots in the Arctic as it faces reduction of its wilderness area by 50 percent over the next fifty years if strong action is not taken to protect it. Global climate change worsens this region’s already fragile environment both at the world av- erage, melting sea ice, interrupting the food chain, and threatening wildlife on which some indigenous populations de- pend on for food, medicine, and clothing.

Long distance air pollution emanating from main industrial areas of the world is poisoning the entire food chain from micro-organisms to human beings.

The Arctic’s indigenous peoples that have lived in harmony with the Arctic nature for thousands of years are now seeing their existence threatened by global development, even bringing some groups to the brink of extinction. It is important to remember that these Arctic peoples are not the causes of the environmental deterioration – the major impacts are coming from activities be- yond their direct control and from regions far removed from their home.

Nature might however strike back. The threat to the Arctic is also a threat to the global environment and the well being of everyone on the planet. Arctic climate change and melting of per- mastroft accelerates global warming. Reduction of species and wilderness significance contributed significantly to a reduction in global biodiversity. Over-fishing puts the global catch at stake.

Do special conditions exist for a dif- ferent kind of sustainable development of the Arctic region? Will Arctic develop- ment become just a component of the development process that has character- ized the rest of the world? Will traditional Arctic societies and cultures be taken as a basis for sustainable development in the region? Will an alternative model of development specific to this region emerge?

I know answers to these questions are not easy. They challenge the very basis of the current process of globalisation.

After all, it must not be forgotten that the Arctic region has over the years become a well-integrated part of the international political and economic system. Can the Arctic region develop the means to escape the importation of the natural resources that form the basis of our current development model?

UNEP welcomes the initiatives and efforts made by the Arctic Council in assessing the state of the Arctic envi- ronment and making recommendations to policy makers on its conserva- tion. We also welcome similar efforts made by parliaments, indigenous peoples and the scientific communities of the region through the University of the Arctic.

UNEP is also pleased that through enhanced environmental awareness, action is being taken by the Arctic govern- ments and stakeholders to work on the Arctic environment. Clearly, sustainable development of the Arctic is an emerg- ing challenge that calls for action through global cooperation and action.

UNEP, with key polar centre GRID- Arendal, is dedicated to placing the sustainable development of the Arctic on the global agenda. Amongst our main priorities are the Arctic environment and a sustainable future for the Arctic’s indig- enous peoples. Their survival and future well-being will be the best indicator of the future for this last remaining last healthy, and vulnerable region of the world.

This increased awareness and the willingness of governments to work to- gether for the Arctic will be on the global agenda both at the Special Session of UNEP’s Global Ministerial Environment Fo- rum in March next year in Athens as well as Korea as well as at the Commission of Sustainable Development meeting in New York in April 2004.

SVEN TVEITDAL is the Director of the Division of Environmental Policy Implementation (DEPI) and Officer-in-Charge of the Division of Environmental Conventions (DEC) in UNEP. Previously he was served as Managing Director for GRID-Arendal.

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Polar Environment Times No.3
Today, the Arctic was in danger of becoming one of the most polluted spots on earth. Air and water currents carry the chemicals to the Arctic. Once there, they tend to stay. They are taken up by Arctic plants and animals and ending up in the bodies of indigenous peoples who rely on local foods.

Survival or store foods

For Arctic indigenous peoples, contaminants are an issue of survival. Most people still rely on the land for a large portion of their nutritional intake. If they can not eat locally available food – seal, walrus, fish, polar bear – there will be direct health consequences. Even with the current contaminant load, in most rural communities where people rely on traditional food for a large portion of their diet, the impact of contaminants is likely to be huge. At least it is a way for Arctic peoples to know their cultural heritage is being preserved.

Several years ago, scientists studying the effects of toxic chemicals found in the blood of people from heavily industrialized areas decided that they needed to compare these people with another group who would not have such chemicals in their blood. They went to the Arctic, thinking that would be the least likely place to find toxic chemicals.

The impact of climate change on traditional food

Climate change will increase temporal fluctuations in species distribution, population abundance, morphology, behavior and community structure. Some of the predicted and currently experienced changes in the north may create positive changes in animal numbers and distributions or provide opportunities to hunt new species as migration patterns and distributions shift.

The Canadian north is vast, rich in natural resources and includes the boreal forest, taiga and Arctic ecosystems. Indigenous peoples tap the food chain in all three ecosystems. Alaskan peoples in northern Canada eat large quantities of traditional foods obtained through hunting, fishing, trapping and gathering. Since market foods are much more expensive in many northern communities than in the south, traditional foods provide many components of a quality diet at relatively low cost. Besides its nutritional values, the traditional diet is also a source of cultural strength and is critical for the social, mental and spiritual well-being of individuals and communities.

Improving indigenous health?

The potential health effects of fluctuations in traditional food supplies on indigenous peoples may be indirect as well. Environmental contaminants, long-range transport, accumulation and biomagnification in the Arctic environment will be affected by climate change. Predicting how climate change will alter contaminant mechanisms in the Canadian north in a global environmental context remains a challenge. Traditional foods can also provide protection against many diseases, which are more prevalent among southern populations. Environmental influences on the availability of and access to these important sources of food, present the risk of losing these beneficial factors as well. A project developed in partnership by two members of the Arctic Athabaskan Council, the Council of Yukon First Nations (CYNFN) and Dene Nation, as well as the Inuit Tapiriit Kanatami and the Center for Indigenous Peoples Nutrition and Environment (CINE) of McGill University and Laval University will investigate the potential health impacts of climate change on northern peoples.

The effects of climate changes in the north on indigenous peoples’ ability to locate and procure these physically, socially, culturally, mentally and economically important food sources are not simplistic predictions for the future; they are a reality in many communities today. However, the extent of these impacts and their implications for the nutritional well-being of individuals and communities is not yet well understood.

The project will work to develop strategies for adaptation to minimize potential impacts on the communities involved. These strategies will integrate local and traditional knowledge, wildlife biology, information on toxicity of contaminants, food composition and nutrient requirement, food availability and effects of environmental changes, cultural and socioeconomic factors. Education and communication initiatives are also planned to assist individuals in making their own informed decisions on food choice.

Appropriate adaptation strategies will be cooperatively developed in the three communities. These strategies will be of value for environmental and health-planning exercises throughout the Canadian north and potentially the circumpolar world in the face of climate related changes.

Photo: Peter Madsen

BY CINDY DICKSON

CINDY DICKSON is the Executive Director of the Arctic Athabaskan Council.

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Climate is a north/south challenge

The Polar Environment Times spoke to Øystein Dahl about the recent international climate debate on the rise of sea levels from ice melting on the poles due to increased global temperature and the consequences to developing nations like Bangladesh.

“We, in the western world, have not sufficiently recognized the fact that the changing climate is a north/south problem. We have all seen a number of the climate related extreme weather events around the world and we know that these changes first and foremost will hit the developing world. In the Western part of the world we have resources to meet any kind of challenge from for example rising sea levels. But in the developing world no such resources are available and the victims will be the many poor and unprotected people”, Mr. Dahl says.

He mentions two possible strategies in which the world can deal with these issues:

“The first is the adaptation strategy, in which the world accepts that we in the future will have to deal with more frequent extreme weather events. We prepare ourselves, make sure not to settle in vulnerable areas, and we adapt in different ways. This strategy equals a defeat: We are giving up too easily.

The second and more important strategy is based on the Kyoto Protocol and the realization that the Kyoto goals are far from enough and a step on the way. We have to recognize that climate change is a human creation and that it is extremely difficult to get the necessary international cooperation to make this happen. We have no other option than to try.”

Øystein Dahl is director of the Institute for the Study of Global Warming, a branch of the GRID-Arendal Board of directors.

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New concerns on the stability of the west Antarctic ice sheet

In 2003, Øyvind Dahl, a glaciologist at the University of Oslo, and his colleagues reported that the Larsen A ice shelf in East Antarctica had lost 25% of its area due to increased melting, a sign of the climate change that has been causing glaciers in the polar regions to melt. This loss of ice from the shelf caused a rise in sea level of about 5 millimeters, which is significant because it indicates a trend towards more rapid sea level rise.

In the following years, researchers continued to study the stability of the Larsen A ice shelf and other ice shelves in the Antarctic Peninsula, where sea levels are frequently above the ice shelf. They found that the ice shelf is important for the stability of the ice sheet because it acts as a barrier to the flow of ice from the interior to the coast. If the ice shelf were to collapse, it could cause a rapid rise in sea level.

In 2010, a team of researchers from the British Antarctic Survey (BAS) reported that the Larsen B ice shelf in West Antarctica had lost 1,200 square kilometers of its area due to increased melting. This loss of ice from the shelf caused a rise in sea level of about 1 millimeter, which is significant because it indicates a trend towards more rapid sea level rise.

Recent studies have shown that the stability of ice shelves in the Antarctic Peninsula is being affected by changes in the climate, including a warming of the oceans and atmosphere. These changes are causing the ice shelves to thin and retreat, which makes them more susceptible to collapse. If the ice shelves were to collapse, they could cause a rapid rise in sea level, which would have significant consequences for coastal communities and the environment.

South American glaciers on the retreat

Recent studies indicate that most of the South American glaciers are drastically reducing their volume at an accelerated rate and could even disappear in the next few decades. By Øystein Dahl

South America's glaciers have been affected by global warming, leading to a reduction in their size and volume. This is particularly evident in the Andes, where glaciers have shrunk significantly over the past few decades. The rate of retreat has accelerated in recent years, with some glaciers losing more than 10 meters of thickness per year.

The main reason for this retreat is the warming of the atmosphere and oceans, which has led to an increase in the amount of water available for melting the glaciers. This has resulted in a rise in sea level and a loss of freshwater resources, particularly in the Andes region.

In 2018, a team of researchers from the University of Oslo reported that the glacier retreat in the Andes is occurring faster than expected, with some glaciers losing more than 10 meters of thickness per year. The rate of retreat is particularly high in the Cordillera Blanca, which contains some of the largest glaciers in the Andes.

The potential impact of glacier retreat is significant for the Andean region, where glaciers provide important water resources and support a range of ecosystems and human activities. The loss of these resources could have serious consequences for the region's economy and environment.
Fish farming in the Arctic

Aquaculture is the fastest growing food sector in the world. In the Arctic sealeach, contaminated discharge, and escaping fish remain problems. **BY DAG NAGODA AND MAREN ESMARK**

More stable and predictable production volumes, as well as large markets in the EU and the US, are among the advantages of aquaculture, the farming of marine organisms, seen from a business perspective. There is already a large salmon and trout industry in northern Norway. In northwest Russia there is some production of salmon, rainbow trout and mussels. The Russian market for seafood is growing, and both the Norwegian and Russian governments advocate further development of aquaculture in the Barents Sea Region.

Impacts of aquaculture on the Arctic environment

If properly regulated, aquaculture can provide good opportunities for local development without large impacts on the ecosystem. Poorly managed and poorly regulated aquaculture, however, can have severe negative impacts through the release of excess nutrients and chemicals, as well as escapes of farmed fish.

Poorly managed and poorly regulated aquaculture can have severe negative impacts through the release of excess nutrients and chemicals, as well as escapes of farmed fish. The extraction of freshwater from rivers can have severe impact on the river habitat. Discharge of waste water can contain harmful concentrations of nutrients, chemicals and be a potential source for infection of, for example, the lethal salmon parasite *Oncorhynchus mykiss*. Less discharge – for now

The most common aquaculture production in the Barents Sea is that of open sea cage farming of Atlantic salmon (*Salmo salar*) and rainbow trout (*Oncorhynchus mykiss*). Improved farming techniques over the last ten years have severely cut the amount of nutrients released from such farms and good monitoring systems address local impacts on both habitats. However, sufficient regulations for controlling cumulative effects of several farms in one area are missing. The use of antibiotics has been significantly reduced, but might increase as new species are developed and new diseases appear. Copper is toxic to marine organisms, and is used as an anti-fouling agent on nets. As the industry grows, so does the total discharge of copper.

600,000 escapes a year

The total number of escaped farmed fish in Norway in 2002 was 630,000 salmon and trout. Ecological impacts of escaped fish are mediated through habitat and feed competition, genetic pollution and the spread of parasites and infectious diseases. Historically, the amount of escaped fish has been low in Trøms and Finnmark county. However, for 2002 shows that at Kvel, in Troms/Nordland, there was an alarming 48 percent of farmed fish caught in the sea. In the Altafossdraget (Altern), the catch included 20 percent escaped fish in 2002. Seals infect the fish

Seals is another problem connected with fish farming. The issue is a marine parasite, naturally occurring on salmonids. More than ten ice can be lethal to migrating seals. The millions of farmed fish that stay in coastal areas all year round now serve as a host for the seal and can be a reservoir for the parasite. In 2002, results from Møre and Romsdal County up to Finnmark County show that infections of sealae are significant, and are likely to affect local stocks of seal and Arctic char.

Indirect impacts on wild fish stocks

Because most species used in marine fish farming are carnivores, fish farming causes a high demand for fatty and protein-rich fish feed. Most fish species used for fish feed are important for the marine ecosystem, as they prey for fish, birds and mammals. In Norwegian salmon farms, 1 kg of farmed salmon requires 3–4 kg of wild caught fish. Species occurring in the North Atlantic, such as capelin, herring, norway pout and blue whiting are frequently used in fish feed. An expansion of the aquaculture industry in the Arctic will therefore increase pressure on wild fish stocks.

Given the increasing interest in aquaculture in the Barents region and its potential negative impacts on the ecosystem, the mitigation measures undertaken in the future will decide if the industry develops in a sustainable fashion or turns into a new major threat to the biodiversity in the Barents Sea.

Understanding human development in the Arctic

The concept of human development has become popular in recent years among those seeking an alternative to Gross Domestic Product (GDP) per capita as a measure of the quality of life. But what does this concept mean in the Arctic? This question has emerged as a key issue for those seeking to fulfill the Arctic Council’s mandate to produce an Arctic Human Development Report (AHDR) in time for delivery at the next ministerial meeting in 2004.

The UN Development Programme (UNDP) has devised a Human Development Index (HDI) based on an average of three distinct factors: (1) a long and healthy life measured in terms of life expectancy at birth; (2) knowledge measured as a combination of adult literacy and school enrolments; and (3) a decent standard of living constructed as GDP per capita. Simple as it is, the HDI has allowed UN statisticians to show that beyond a certain point this broader measure of human development improves significantly from GDP per capita.

This is an important result. But is the HDI a good measure of human development in the Arctic? It is hard to quarrel with some aspects of the HDI. Who does not wish to enjoy a long and healthy life? But the deeper team members behind the new Arctic report have delved into the meaning and usefulness of the HDI in this setting.

The good life

Many Arctic residents – especially those who are indigenous to the region – associate a good life with the maintenance of traditional hunting, gathering, and herding practices. Yet it is difficult to use indicators like GDP per capita to measure the health of these subsistence systems. For many, a good life is one that minimizes the need for the sort of material goods and services implicit in the idea of GDP per capita as a measure of welfare.

Nor is the situation any clearer with regard to knowledge. Arctic residents often possess extraordinary knowledge. But their education may not produce high scores in terms of measures like adult literacy or years of school. Even a simple notion of life expectancy at birth is suspect in this setting. Living a long life is undoubtedly desirable. But what if the choice is between a shorter life rooted in traditional activities and a longer life spent trying to adjust to the loss of a deeply valued lifestyle and the need to function in an alien setting?

A broad concept of HDI

Considering these issues, the Arctic Report’s Steering Committee decided early on that computing and tracking changes in the HDI should not be the starting point for the assessment of human development in the Arctic. The report will not contain an alternative index of human development that can be compared directly with the UN’s HDI. The issues at stake are – ranging from efforts to establish rights through responses to rapid social change and on to the challenges of changing gender roles in the rapidly changing world – are too complex for that.

Rather, the report will seek to broaden the concept of human development, documenting dimensions of the quality of life that are critical to Arctic residents but yet do not show up in any meaningful way in the HDI. The goal is to contribute to the development of Arctic-specific policies that will improve the quality of life in this region, without imposing a concept of human development that is not based on the realities of life in the Arctic and that does not capture the aspirations of many of the region’s residents.

**ORAN B. YOUNG** is Chair of the Board of Governors of the University of the Arctic. In that capacity, he serves as Co-chair of the Steering Committee of the Arctic Human Development Report. For more information on the project in terms of structure and process, questions and lead authors, interested readers are invited to visit the website of the project secretariat at the Stefansson Arctic Institute, www.ari.is.

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The chapters of the Arctic Human Development Report

1. Introduction to Sustainable Human Development in the Arctic
2. Arctic Demography
3. Arctic Economics
4. Arctic Environment and Resource Governance in the Arctic
5. Arctic and the Arctic
6. Arctic Political Systems
7. Arctic Legal Issues
8. Arctic Societies and Cultures: Change and Persistence
9. Human Health in the Arctic
10. Human and Social Capital in the Arctic
11. Community Viability in the Arctic
12. Gender Issues in the Arctic
13. Internal and International Governance in the Arctic
14. Conclusions and Key Issues
Traditional food and participatory research: a Canadian experience

Traditional/country food has a central role in the life and health of indigenous peoples in the north. Unfortunately, there is a general declining trend of the use of traditional food in northern Canada. BY LAURIE H.M. CHAN AND HARRIET V. KUHNLEIN

Indigenous peoples have clear perceptions of factors contributing to environmental change, lifestyle change and ultimately to dietary change. These factors have been described to include a reduced density of species and available harvesting areas; restricted harvesting in accessible areas; time and energy limitations for traditional harvesting; interruption of knowledge transfer to youth due to employment of adults and schools for children; availability and accessibility of new food products; acceptability of new food products as a result of media, social contact and education; and concerns for wholesomeness and the presence of contaminants in traditional food.

To study the importance of traditional diets, researchers at the Centre for Indigenous Peoples’ Nutrition and Environment (CINE) at McGill University in Canada conducted three comprehensive dietary surveys in the last ten years in 44 communities in the Canadian Arctic and sub-Arctic regions with the support, participation and guidance of Aboriginal partners including the Inuit Tapiriit Kanatami of Canada, Dene Nation, Metis Nation of the Northwest Territories, and Council of Yukon First Nations. Participants were randomly selected for interviews, and a total of 3689 interviews were made. Approximately 600 food items prepared for consumption were sampled for analysis of nutrients and contaminants. Traditional food was reported as being consumed frequently and included a large variety of species and body parts. Traditional food used by Dene/Metis, Yukon First Nations and Inuit communities included 62, 53, and 129 animal species and 40, 48, and 42 plant species respectively in the three areas. The proportion of energy from traditional food varied among communities and seasons, ranging from about 10 to 40 percent of all calsories in the average day from traditional food.

Traditional/country food also provides economic benefits to families. Many respondents in communities stated that they would not be able to afford all their food needs, if required to buy it from the store. The majority of respondents also stated that harvesting and using traditional food by the family provided many benefits, such as improved physical fitness and good health, and as a way for adults to model responsibility for their children.

Throughout northern Canada, indigenous peoples are assuming a greater role in determining the kind of research that takes place with them. Research projects on health and nutrition issues, in particular, require support from community leaders and councils and individual participation. A good partnership between research scientists and the communities ensures the relevance of research objectives, the appropriateness of the methodology and the effectiveness of the communications of the results and the overall success of the project. For example, the dietary surveys conducted by CINE were community driven and involved community agenda setting, and community participation. Results were freely shared with northern communities. Cultural traditions with respect to the ownership and use of traditional knowledge were respected. The format and time frame of the release of any information resulting from the research activities were agreed upon by all parties (the university, its researchers, partners and participating communities) in advance. Students and researchers joining the project were trained to respect traditional knowledge and community participation. Research results were disseminated through traditional communities in plain, easily understood language, and in an appropriate dialect. Based from the CINE experience, the World Health Organization has developed a document titled Indigenous Peoples and Participatory Health Research – Planning and Management and Preparing Research Agreements. The document may serve as a template of basic principles to be observed in planning, organizing, and carrying out research on indigenous health issues.

Laurie H.M. Chan is an Associate Professor and holds a NSERC Northern Research Chair in Environmental Contaminants, Food Security and Indigenous Peoples of the North at McGill University. Harriet V. Kuhnlein is a Professor in Human Nutrition at McGill University. She is the Founding Director of the Centre for Indigenous Peoples’ Nutrition and Environment and was recently awarded the Jack White Medal in 13th International Cosmos on Circular Health.

The Centre for Indigenous Peoples’ Nutrition and Environment (CINE) opened in 1995 in response to a request expressed by Aboriginal Peoples in Canada for participatory research and education to address their concerns about the integrity of their traditional food systems. The mandate of CINE is to undertake, in concert with Indigenous Peoples, community-based research and education related to traditional food systems. The CINE model is based on the concept of a community-based knowledge process with community ownership and control of the research agenda.

Northern eyes in the sky

The European Space Agency and the European Commission are sponsoring a global initiative to facilitate the use of Earth Observation data in the monitoring of the environment. Northern View in a key component in the initiative, and draws its name from its geographical focus of the north and Arctic.

A wide range of collaborators, including governmental and inter-governmental agencies, the private sector and NGOs are working together to operationalize Earth Observation services to detect all spills and discharges, track ice and sea ice, and monitor glaciers, snow and land-cover. In addition Northern View day-to-day operation actively seeks – the participation of end-users to design and implement new Earth Observation services, and feedback into other sources of environmental information.

The European Space Agency and the European Commission are sponsoring a global initiative to facilitate the use of Earth Observation data in the monitoring of the environment. Northern View in a key component in the initiative, and draws its name from its geographical focus of the north and Arctic.

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There and back again: accessibility is the key

Though the indigenous peoples’ communities in Russia may seem more reachable now, the accessibility of the remote settlements, government bodies and sources of information continues to be the hurdle for improvement of self-governance, education and health. BY TAMARA SEMENOVA

The distance between Naryan-Mar (capital of Nenets region) and the Kanin Peninsula is far too large for this project to be traveled by helicopter.

More than 200,000 people live in the Russian north. The area of their traditional territories is very extensive and spreads from Kandalaksha in the west to Chukotka in the east, and from Taimyr in the north to Buryma in the south. But getting access to these remote communities is a struggle both for the people living there and people from the outside. Issues varying from education, health care and information to availability of primary facilities like plumbing, is often aggravated by the difficulties in accessibility to these communities.

The accessibility of the Russian indigenous communities and its effect on the communities’ health and environment has been assessed by the all-Russian non-governmental umbrella organization Russian Association of Indigenous Peoples of the North (RAIPON) within the framework of the project: Local Health and Environment Reporting by Arctic Indigenous Peoples: conducted in partnership with GRID-Arendal. The project is the first study exensively covering this issue in the Russian north.

The total indigenous population in Russian rural areas is approximately 150,000 people, residing in over 750 settlements, which considerably vary in size, natural and geographical conditions. They are mostly located in the boreal zone, and only a limited number of tundra settlements belong to the Arctic. The population of a northern settlement falls within the range of 1 to 9,000 inhabitants, its average size being 200 people. These are relatively small settlements, which significantly differ in the proportion of indigenous population. In general, the smaller the community – the larger this proportion is.

The study has indicated that, due to the remoteness, local administration is, by far, the prevailing means of transportation to northern settlements. In 55 percent of cases local aviation is a predominant and in 37 percent – the only means of transport to the regional administration center. Cars, 4-wheel drives and tractors are used in 33–40 percent of the communities, motorboats and snowmobiles – in 28 and 21 percent, respectively. Thirteen percent indicate motorboats as their main means of transportation. The motorboats, snowmobiles and motor-tractors are used in 11–17 percent of the communities, but if there is a regular bus line to a regional center, bus is the main vehicle for commuting.

The indigenous communities’ access to governmental bodies and power structures seems to have slightly improved. Naturally, the most accessible ones are reported to be local council deputies and local militia, then comes district administration and finally regional authorities. Deputies of the national (Federal) level, are regarded as practically inaccessible.

RAIPON’s local and regional chapters are perceived as much more open bodies to indigenous peoples.

Northern communities are very isolated and their access to mass media is of high importance to residents. Television and radio are reported to be out of reach in 27 and 15 percent of the communities, respectively, and 64 percent are not able to receive regional or national periodicals.

Tamara Semenova is researcher and project coordinator in RAIPON.

For the project report see www.raipon.org
Aleo communities in charge of environmental health monitoring

Over half of the Aleut households in the Aleutians and Pribilofs eat marine mammals and selected sampling has shown higher than normal levels of contaminants in their blood. More cooperative efforts are needed, as well as continued monitoring.

By Victoria Goman

For thousands of years Aleuts have relied on marine resources for their survival. Traditional foods continue to be critical for individual and community health. Over 90 percent of the households of the western Aleutian village of Atka consume marine mammals, mostly sea lions and harbor seals. Over 70 percent of the households of St. Paul in the Pribilofs consume marine mammals, predominantly northern for seals. Because of this dependence on sea mammals, Aleut communities have become a driving force behind efforts to better understand the risks associated with environmental contaminants and the potential effects on public health.

In the year 2000, the State of Alaska conducted testing for Persistent Organic Pollutants (POPs) in blood samples from human subjects in five Aleutian and Pribilof island villages. The results showed higher than normal levels of some contaminants, including Polychlorinated Biphenyls (PCBs) and Ochron-Diphenyl-Trichlorothylene (DDT). These findings have raised new questions about the fate and transport of POPs and the need to study the exposure level and impacts.

Another study from this area is focusing on the most sensitive members of the population: mothers and newborn infants. Ten Aleut tribes are enrolled in the Alaska Native Traditional Food Safety Monitoring Program, which monitors contaminant levels in blood, hair and urine. Health care providers obtain dietary data from the mothers and follow the health of children for several years. In September 2003, the project was extended to include Russia’s Aleuts and other indigenous peoples from the Kamchatka Peninsula and Commander Islands. The expansion of this program is the first step in creating an interna- tional environmental health-monitoring network in the Bering Sea region.

More cooperation needed

One of the challenges with contaminants in indigenous peoples food is the lack of collaboration between communities, scientists and healthcare providers on studies about contaminants pathways in order to improve public health. The rise of cardiovascular diseases, diabetes, and obesity makes it necessary to reassess not only the risks but also the benefits of a traditional diet.

New projects happening

St. Paul and Atka are currently working with regional and tribal agencies on a four-year contaminants study: Dietary Benefits and Risks in Rural Villages. This study provides a model for village specific assessments of contaminant concerns and the broader implications of diet from a public health perspective. The project addresses several issues: levels of pollutants, nutritional value in traditional vs. available commercial foods and health consequences of dietary change based on epidemiological data about diabetes, heart disease and other emerging village health problems.

The project includes dietary surveys to determine types and quantities of foods consumed, testing of traditional food samples for contaminants (PCBs, pesticides, radionuclides, and heavy metals) and nutrients, as well as community education. Hiring village based coordinators and research assistants enhances the effectiveness of two-way communication and makes local residents active participants in the research and remediation of the impacts.

A video document about the project features Aleuts speaking about the significance of traditional food. This film provides an opportunity for the non-in- digenous audiences to acquire insight into native lifestyles and to understand the intersection between the native people, diet, environment and health. The Aleut community strongly believes that an understanding of the importance of diet to native culture is critical to the successful collaborative research.

Aleut tribes and organizations are actively engaged in finding ways to en- sure a healthy environment and lifestyle for their people. They have established partnerships with scientists, government authorities and policy makers, and have begun developing local capacity to per- form on-going research and monitoring. The growing understanding of the trans- boundary nature of the environmental impacts calls for international collabora- tion where the Aleut organizations could become valuable partners.

Victoria Goman is the executive director of the Aleut International Association (AILI), an Alaska Native non-profit formed by the Aleut/Pribilof Island Association (regional council of 13 Aleut Villages in the United States) and The Association of Indigenous People of the Aleut/Alaskan Region of the Russian Federation. AILI is a Permanent Participant in the Arctic Council. The organization’s mission is to facilitate international cooperation aimed at protection of the environment, health and sustainable development of the Bering Sea region and to rebuild ties between the American and Russia’s Aleut people.

The Dietary Benefits and Risks in Rural Villages is administered by the Aleut/Pribilof Island Association (A/PIA). Project research is by Michael Broskosky, A/PIA Community services director. For more information go to www.apia.org.

The Traditional Native Food Program in Kamchatka is administered by the Aleut Alaska Tribal Health Consortium and the Aleut International Association. Principal investigator is Dr. James Berry, ANTHC. For more info e-mail victoria@apia.org.

FAT FACTS

Health and environment

The highest Arctic exposures to Persistent Organic Pollutants (POPs) and mercury are favored by Inuit populations in Greenland and Canada. These exposures are linked mostly to contamination of marine species as part of traditional diets.

Exposure to mercury has increased in many Arctic regions while exposure to lead has declined.

Subsystem health effects are occurring in certain areas of the Arctic due to exposure to contaminants in traditional food, particularly for mercury and Polychlorinated Biphenyls (PCBs). The evidence suggests that the greatest concern is for fetal and neonatal development.

Increasing human exposure to current-use chemicals has been documented, for example for brominated flame retardants.

In the Arctic, diet is the main source of exposure to most contaminants. Dietary intakes of mercury and PCBs exceed established national guidelines in a number of communities in some areas of the Arctic, and there is evidence of neurobehavioral effects in children in some areas.

In the Arctic region, a local public health intervention has successfully achieved a reduction of exposure to mercury by providing advice on the mercury content of available traditional foods.

Overall, a traditional/country food diet is healthier than a typical northern market food diet.

People over 40 years of age tend to eat more traditional/country foods than younger people and men consume more than women.

Western lifestyles and poor health are beginning to overlap and undermine traditional ways of life where they are more than ever a leading cause of death. Vulnerable populations, including the poor and children, have a disproportionate burden of disease from environmental sources.

Although a wide body of knowledge on the linkages between environmental hazards and threats to human health exists, that knowledge base is not systematically harnessed to influence decision- making. It is necessary to develop mechanisms and tools to provide access to relevant knowledge and experience in a logical framework that facilitates the identification and solution of connected environmental and health problems. There is also a need to build capacity for implementing policy change and taking action to protect the environment and human health at local, national, and regional levels, in ways that are appropriate to social, cultural and economic contexts.

A Global Initiative

At the 2002 World Summit on Sustain- able Development (WSSD) held in Johannesburg in South Africa, Canada launched a global initiative called Strengthening Health and Environment Linkages: From Knowl- edge to Action (Health and Environment Linkages Initiative). Canada has been working since then in partnership with the World Health Organization (WHO), the United Na- tions Environment Programme (UNEP) and the United States Environmental Protection Agency (USEPA), to develop a plan of action for the initiative. The aim of the Initiative is to facilitate and enhance effective actions to reduce adverse environmental impacts on hu- man health. The Linkages Initiative hopes to accomplish this by assembling scientific, technical and socio-economic information on environment and health linkages, and transforming the knowledge gained into informed decision-making and enhanced capacity at the local, regional and national levels. In practical terms, this will happen through the application of assessment methodologies, sharing experiences on policy interventions to improve capacities in countries, considering and health and decision-making.

A work plan that lays out all of the key aspects associated with the HELL including objectives, scope, budget, deliverables and governance has been developed. The work plan was informed by an international needs assessment workshop held in Geneva, November 2003. The workshop brought together 28 representatives from 14 developing and developed nations, non-governmental organizations and other international organisations that work in both the health and environ- ment sectors.

The workshop produced a number of recommendations, one of which was to establish an international secretariat. It was agreed that the secretariat should focus on the decision-making process, and not on the generation of scientific knowledge. Decision-making tools and processes to be produced by the Initia- tive should therefore be demand-driven (i.e. designed to fill specific requirements of policy makers, in order to improve the quality of their decisions). This in con- trast to a supply-driven approach that starts with an existing body of scientific knowledge (which is partly determined by academic interest and feasibility of investigation) and attempts to integrate it into the decision-making process.

The initiative will provide policy mak- ers with comprehensive and accessible guidelines on how to reach an evidence- based decision on issues with a potential impact on health and environment, and how to interpret the results of models used. While these are the major goals of the Link- ages Initiative, its success will depend on linkages among research, scientific, governmental and non-governmental bodies and interna- tional organizations.

Jeffrey Barrett is a Policy Analyst at the Environmental and Human Health Policy Division of Environment Canada, and is a member of the International Steering Committee for the Health and Environment Linkages Initiative.

The Linkages Initiative has just established an operational secretariat that can be contacted for more information on the Linkages Initiative. Please contact Mr. Diarmid Campbell and Pierre Quiblier (quiblier@un.org) or Pierre Goldie (pgoldie@uhn.on.ca).
Memorable Svalbard

The Arctic is a vulnerable region in an ecological respect and has become increasingly exposed to the effects of industrial and agricultural activities worldwide. Wind, precipitation and current carry pollution to the Arctic region. Thus, protecting the environment of the Arctic is an international obligation. Already, emissions of mercury from coal burning in other parts of the world affect flora and fauna in the Arctic. Specifically, Polyhalite-Bearing CaCl2 (PBC), a mixture of industrial chemicals, are thought to have severe impact on the animals’ immune and hormone systems and their reproductive abilities. In the Norwegian Arctic, polar bears with genital characteristics resembling both sexes have been found. We also see negative effects from other contaminants on seals, seabirds and white whales. The Arctic is of special interest as indications suggest that the effects of climate change will appear here first. Due to the fragility of the Arctic ecosystem, climate change may lead to profound negative consequences for the biological diversity. Many scientists warn that climate warming in the Arctic will have effects which extend far beyond the region as changes in ice cover and deep water circulation may affect global climate patterns. The Arctic may serve as a window for future climate changes, as well as foreseeing the effects of global warming for 65 percent of our marine coastline, and holds 30 percent of our freshwater resources. Clearly, we have an interest in protecting it, but few of its effects are understood in detail.

Svalbard represents a significant part of Norway and Europe’s last wilderness. At the same time the harsh climatic conditions here have played an important factor in preserving its cultural heritage. Svalbard is truly an important part of our global environment.

Lessons from the Svalbard ice

For seven days in August this year seven Ministers from the Environment, one US Assistant Secretary and one UN representative swam in the Arctic freezing water, traveled from Longyearbyen to Ny-Ålesund on board a research vessel, and slept in basic accommodation in northern Norway on the islands of Svalbard. They came from South Africa, China, Iceland, England, Russia, Sweden, Denmark and Canada to talk about polar environmental issues. Børge Brende, the Norwegian Min- ister for the Environment and the host of the trip, wrote in his invitation to his colleagues: “After the Johannesburg Summit, we are all facing the task of finding new and effective ways to tackle the world’s growing environmental challenges faced by all countries. With the Arctic

What can we do to save the Arctic? First we need to monitor and understand the environmental changes that are taking place over time in the region. The precautionary principle must be guiding the principle. The global nature of these challenges calls for the widest possible cooperation by all countries. The Kyoto Protocol is an important first step to address climate change, but ultimately we need a broader global and political response to combat the challenges of climate change. There is also a need to increase our understanding of the potential impacts of climate change in the Arctic. In this respect, Norway participates actively in the Arctic Climate Impact Assessment Cooperation (ACIA), which was started by the Arctic Council in 2000 and will present its findings in 2004.

According to the Director of NASA, Mr Sean O’Keefe, Svalbard has become the world’s most important monitoring and research station with regard to the environment. This assertion is due to the fact that early effects on the global eco-system can be detected at these islands, and in the Arctic. Norway has a specific obligation related to the Svalbard Treaty. Through tight regulations of the islands’ wild and unspoiled nature, we try to keep this part of the Arctic as a window to better understanding of the global environment.

BERGE BRENDE
Minister of the Environment, Norway

The world’s eyes are on the Arctic

Canada’s Arctic is a magnificent place. It has been my privilege to visit our far north on a number of occasions and have first-hand the inspiring land we share. It is difficult to imagine how human- kind could possibly make an impact on a land of such seeming power, or do harm to any creature tough enough to survive an Arctic winter. Yet aboriginal leaders tell me their people can no longer rely on the traditional knowledge of the land that has guided them for centuries – the sea ice is different, there is more run-off from snow pack and glaciers, winter comes later and spring comes earlier. More than 40 percent of Canada’s landscapes is in the Arctic. It accounts for more than half of the land area and holds 30 percent of our freshwater resources. Clearly, we have an interest in protecting it, but few of its effects are understood in detail.

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Conserving nature, creating wealth

The Arctic region and climate change

The Arctic has one of the most extreme environments on the planet. But the pace of change here is accelerating. My visit to Svalbard this August brought home to me just how much this apparently remote and fragile environment is affected by our everyday actions here in the UK and around the world. I very much appreciated the organization of the tour by Norway and the opportunity to have in-depth discussions facilitated by Environment Minister Børge Brende. It was a wonderful opportunity to see some stunning scenes and the fragile wildlife.

In this article, I focus on one of the most pressing environmental issues facing the Arctic today – climate change. Already, average temperatures in the Arctic have risen by almost 1°C over the last 30 years – considerably faster than the global average temperatures in the Arctic have risen by almost 1°C over the last 30 years – considerably faster than the global average. As concentrations of greenhouse gases continue to rise, the warming will continue. Scientists have predicted that global average temperatures could increase by as much as 6°C by the end of the century. At the same time, the UK’s Hadley Centre predicts that winters over the Arctic will warm by as much as 16°C under a high emissions scenario, and Arctic sea ice will disappear completely each summer. We urgently need to tackle the emissions causing climate change. The UK Government has already put in place an ambitious program of domestic action to cut greenhouse gas emissions and ensure that we meet our target under the Kyoto Protocol and more towards our domestic goal of a 20 percent cut in carbon dioxide emissions by 2010. But much greater cuts will be needed globally if we are to stabilize greenhouse gas concentrations and avoid the most serious impacts of climate change. This will require a fundamental shift towards increased energy efficiency and low carbon technologies. The UK is rising to the challenge and earlier this year the Government published an Energy White Paper, which sets us on a path towards a 60 percent cut in carbon dioxide emissions by 2050. We now need others to follow suit.

In addition, we need to focus our attention specifically on the threats posed by climate change for the Arctic region. The UK government is keen to continue its support to the Arctic Council in addressing climate change and other sustainable development issues, and in particular effects on communities of the High North.

The Arctic is not an enclave. Many of the problems facing the region do not originate there, and cannot be solved in the Arctic alone. We now need to work hard to ensure that international cooperation through the Arctic Council can be further developed to help us tackle this problem. Understanding what climate change means to this region is not only critical in and of itself – it is an early warning system for the whole planet.

ELLIOT MORLEY
Minister of the Environment and Agri-Environment, UK

SIV FRIDLEIFSDÓTTIR
Minister of the Environment and Nordic Co-operation, Iceland

The Arctic is in the grips of environmental change. Far-born pollutants, like Persistent Organic Pollutants (POPs) and heavy metals like mercury, are affecting its biota and people. Climate change appears to be happening much faster here than in more southern climates. In the next 100 years it is possible that the temperature may rise by 3–9°C in the Arctic, about double the average expected on the rest of the globe. These truths were brought home to me in my visit to Svalbard at the August meeting for environment ministers and other high officials hosted by Børge Brende, Norway’s Environment Minister. We have of course known many of the facts regarding environmental change in the Arctic for some time, but discussing them with experts and decision-makers in the magnificent setting of Svalbard made them very pertinent. The natural environment of the Arctic is changing perhaps more rapidly than in any time before in human history, and the countries of the circumpolar region must try both to tackle the causes of our problems and adjust to the change. Social change is also rapid in the Arctic. Powerful forces create stress on ancient cultures and traditional ways of life. For these reasons, the next decade looks likely to be a turbulent period for Arctic residents. Iceland shares many of the characteristics of the Arctic as a whole, such as a reliance on natural resources for economic growth and a desire to preserve its traditions and culture in an era of globalization. We must also work on conserving our nature, which is both a provider of our livelihood and a big part of our identity. The Icelandic government has in recent years attempted to diversify the economy, which is still very dependent on fisheries. A part of this strategy is the harnessing of Iceland’s abundant renewable energy to foster new industries. These efforts are also meant to strengthen employment in regions that have experienced population decline. They also help in our fight against climate change. A shift from fossil fuels to renewable energy is the one single policy measure that will do the most to halt the emission of greenhouse gases. Already, over 70 percent of Iceland’s energy demand is met by clean and renewable energy sources, and the government aims to increase this ratio still more. A new project introducing hydrogen vehicles to Iceland aims at starting a clean revolution in transport, the biggest remaining source of greenhouse emissions.

While harnessing Iceland’s hydro and geothermal energy is positive from the viewpoint of halting climate change, it can clash with efforts for nature conservation. We have had a lively debate on new power projects in Iceland in recent years. We must strive to find a fair balance between economic and social development and nature conservation. In October 2003, as Minister for the Environment, I presented the first comprehensive nature conservation plan, which outlines the creation of more national parks, encompassing glaciers, volcanoes, hot springs and turbulent rivers – a unique showcase of Earth’s creative forces in action.

The Arctic faces much the same dilemmas and choices as Iceland. The challenges of climate change and far-born pollutants must be faced. We must also ensure that we conserve the magnificent nature of the Arctic regions, while working on the economic and social developments of Arctic communities.

The ministers tried glacier hiking on the Byrd Glacier at 79ºN. From left it is the Chinese translator Xhang Shigang; Einar Johansen, the Norwegian Polar Institute’s manager of science; Kausi Titov, Executive Director at IIRP, sitting in front IIRP Chair Mosaa, Minister for the Environment, South-Africa; PIQ President, Managing Director of Center for International Climate and Environmental Research (CICERO), Olav Christen, Managing Director at the Norwegian Polar Institute, sitting in front Associate Secretary, John Turner from the US Department of State, Borge Brende, Norwegian Minister for the Environment, Lars Sommestadt, Minister for the Environment from Sweden; David Anderson, Minister for the Environment, Canada; Eli Fridleifsdóttir, Minister for the Environment, Iceland; yachting in front Mrs. Xia Zhanhua, Minister for the Environment from China, and Elliot Morley, Minister for the Environment from the UK. In the back, the research vessel Lance.
The Arctic and International Agreements

The Arctic is playing an increasingly important role in a global environmental context. The table below was recently prepared by UNEP in collaboration with the Multilateral Environmental Agreements (MEAs) listed here to highlight their relevance to the Arctic.

**MEAs are basically internationally agreed upon measures to protect the environment and/or to promote sustainable development, and require the engagement of stakeholders at all levels to make them truly effective.**

New UNEP study highlights priority issues, ongoing activities and the need for future work for each MEA in the Arctic region.

### Multilateral Environmental Agreements and their relevance to Arctic Ecosystems and Indigenous People

**Area of work**

- **Stockholm Convention on Persistent Organic Pollutants (POPs) and UNEP Chemicals**
  - The Stockholm Convention is a global treaty to protect human health and the environment from persistent organic pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. POPs circulate globally and can cause damage wherever they travel. In implementing the Convention, Governments will take measures to eliminate or reduce the release of POPs into the environment.
  - UNEP Chemicals is a platform for co-operation on chemicals issues and works with governments and stakeholders to achieve shared chemical management goals.

**Stockholm Convention on Persistent Organic Pollutants (POPs) and UNEP Chemicals**

- **Convention on Biological Diversity (CBD)**
  - Convention on Biological Diversity is a global environmental treaty that recognizes, conserves and equitably shares the benefits arising from use of genetic resources. The Convention establishes three main goals: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of the benefits arising from use of genetic resources. The Convention translates its objectives in a series of binding conventions and key provisions as measures and conditions on the conservation and sustainable use of biodiversity, research and training, public awareness and education, assessing the impacts of projects upon biodiversity, negotiating access to genetic resources and sharing of benefits arising from their use.

**Convention on Biological Diversity (CBD)**

- **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**
  - CMS is a global agreement to conserve Migratory Species of Wild Animals. It requires each country to take measures to conserve the species, where they are found in its territory. Moreover, Parties to CMS must consider developing an action plan for the protection of each species, in full cooperation with other Range States authorities.

**Convention on the Conservation of Migratory Species of Wild Animals (CMS)**

- **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**
  - The Convention on the Conservation of Migratory Species of Wild Animals (CMS) is an international agreement aimed at securing the survival, protection and rational use of species of wild animals that migrate across national boundaries. The focus of the Convention is on those species that migrate across national boundaries, and that can be affected not only by measures taken in the country where the species is found, but also by actions taken in other countries along the species’ migration routes. The Convention provides the framework for the development of action plans for the conservation of the species which are based on scientific assessments of the species’ population levels, threats and needs.

**Convention on the Conservation of Migratory Species of Wild Animals (CMS)**

- **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**
  - Agreement of the African-Eurasian Migratory Waterbirds (AEWA) is an international agreement that is designed to protect and promote the conservation of migratory waterbirds. AEWA has been designed to fit the principles and standards of the CBD and its implementation mechanisms, including the 1990 Convention on Biological Diversity (CBD) and its Conference of the Parties. AEWA is based on the principle that the conservation and sustainable use of migratory waterbirds can only be achieved cooperatively. The Agreement provides for the conduct of comprehensive assessments of the status of migratory waterbirds, both within and across the AEWA region. These assessments are used to identify the threats and opportunities that are affecting migratory waterbirds, and to establish the priorities for conservation and sustainable use.

**Convention on the Conservation of Migratory Species of Wild Animals (CMS)**

- **Ramsar Convention on Wetlands**
  - The Ramsar Convention on Wetlands is an international treaty that aims to stop the loss of wetlands globally. It is based on an international agreement signed in November 1971 and entered into force in 1975. The Convention does not cover non-wetland-related issues such as the sustainable use of wetlands for water resources, fisheries, recreation and tourism, water quality and sanitation.

**Ramsar Convention on Wetlands**
Coordination of Arctic issues, as for other environmental issues, hinges on the building of partnerships between MEAs, IUCN, the marine environment, organizations and NGOs in the implementation and “operationalization” of the four Co-operative Action Plans, coherence, compliance and capacity-building. Under this vision, coordination is a process rather than a one-time event and requires continuous dialogue between the partners. It is expected that this study will facilitate the identification of synergies and interlinkages between MEAs and relevant partners on Arctic issues, and encourage partners to develop joint programmes and help identify funding opportunities. Enhanced cooperation will speed our progress towards our goals of protecting the environment and achieving sustainable development.

LAURA MEZAROS is a Programme Officer in the Division of Environmental Conventions at UNEP headquarters in Nairobi, and works closely with GRID-Arendal on polar issues.

Area of work

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES works towards ensuring that international trade in specimens of wild animals and plants does not threaten their survival. Because the trade in wild animals and plants crosses international borders, the effort to regulate it requires international cooperation. The convention provides a framework for the implementation of national legislation.

Issues affecting Arctic ecosystems and indigenous peoples

Not a geographic focus on the arctic region, but at CITES listed species. The role of indigenous communities in the management and regulation of trade in CITES-listed fauna and flora is recognized by the parties and reflected in a number of CITES activities and decisions. CITES resolution 13.2 recognizes that unless conservation programmes take into account the needs of the local people, and provide incentives for the sustainable use of wild flora and fauna, conversion to alternative forms of land use may occur. The parties recognized that commercial trade may be beneficial to the conservation of species and ecosystems and to the development of local people when carried out at levels that are not detrimental to the survival of the species in question. CITES resolution 12.30 on compliance and enforcement, recommends that participating countries undertake to secure the support and cooperation of local and rural communities in managing wildlife resources and therefore combating illegal trade.

Relevant activities

A number of species relevant to the arctic area are listed in the three CITES Appendices, and trade in these species and their parts and derivatives are subject to the provisions of the Convention.

Need for future work

Under the CITES Action Plan, further to the convention, the parties are encouraged to develop and implement appropriate eco-nomic, education and awareness programs that lead to local involvement in wildlife management and desirable participation in combating illegal trade within and from producing countries.

World Heritage Convention (WHC)

The WHC provides one of the most widely accepted universal international legal instru-ments for the protection of the cultural and natural heritage. The World Heritage Convention (WHC) is an international, non-government organization that provides the World Heritage Committee with technical evaluations of natu-rel heritage sites and, through its worldwide network of experts, reports on the state of conservation of listed properties.

The World Heritage Convention is concerned with the need to fill critical gaps for new nominations of arctic ecosystems, since only one Arctic World heritage site has been inscribed.

Denmark has nominated a natural site in Greenland this year. IUCN is currently evaluating the Greenland site (evaluation will be ready in May 2004).

Only one Arctic World heritage site has been inscribed so far.

United Nations Convention Framework Convention on Climate Change (UNFCCC) and the International Panel on Climate Change (IPCC)

The UNFCCC has the ultimate objective of stabilizing the concentration of greenhouse gases in the atmosphere at a level that would prevent dangerous human interference with the climate system. Such a level has to be achieved at a time sufficient to allow ecosystems to adapt naturally to climate change, to ensure the survival of all species, and to enable economic development to proceed in a sustainable manner.

Sea level rise, warming sea surface temperatures and any changes in ocean surface temperature and intensity. Further temperature warming would increase stress on the arctic ecosystem and result in an increased frequency of disease for all the life forms. Change in ocean chemistry resulting from higher CO2 levels may also have a negative impact on the health of the arctic ecosystem. Regarding assessments, there are many polar climate change (Arctic and Antarctic) topics that are likely to be key issues in the 4th Assessment Report of the IPCC. Among these are observed and projected changes in sea ice and sea ice, which influences not only the climate of the polar regions but also the rest of the world. Sea level rise is clearly another topic with important connections to polar climate, particularly for future projections over long time scales.

Vienna Convention on the Protection of the Ozone Layer and the Montreal Protocol on substances that deplete the Ozone Layer

The objective of the Vienna Convention is to protect human health and the environ-ment against the adverse effects resulting from modifications of the ozone layer. The Montreal Protocol, which operates under the framework of the convention, has the objective to protect the ozone layer by taking provi-sory measures to control global emissions of substances that deplete it.

The environmental effects have also looked at the effects of ozone layer depletion on various ecosystems including in the polar regions.

United Nations Convention Framework Convention on Climate Change (UNFCCC) and the International Panel on Climate Change (IPCC)

The Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (GPA) deploys a regional non-binding action plan without convention. The GPA bases UNEP’s GPA methodology with POPs as the number one priority pollutant to be addressed. The GPA implements the efforts of the Arctic countries to implement the GPA on a regional level. The Arctic Council’s working group addressing protection of the Arctic Marine Environment (PAME) is currently developing an Arctic Marine Strategic Plan (AMSP) through integrated approaches, including the establishment of protected areas. The AMSP will address the challenges of coastal and marine environments. Now or innovative approaches, including large marine eco-systems (LMEs) will be considered. The international peoples groups that are partners to the Arctic Council are fully and actively involved in the development of the AMSP.

Examples of developments in addressing sources of pollutants from land-based activities include the Russian APE-Arctic, which even though not an Arctic Council project, has been supported by the Council through the PAME working group. The Russian APE-Arctic comparison, among other issues, three demonstration projects that will provide a basis for wider application of approaches and techniques for environmental restoration and damage prevention actions in Russia, within the arctic community of states and globally. One of these demonstration projects involves the establishment of a demonstration of indig-enous peoples community organization as three thematic environmental governance, enhanced public health and sanitary services, and the creation of protected buffer zones under native jurisdiction in areas of intense natural resource development.

Further information:

- Stockholm Convention on Persistent Organic Pollutants (POPs) and Ozone depletion:
  - www.chm.unep.org
  - www.pops.int
- Convention on Biological Diversity (CBD)
  - www.cbd.int
  - www.biodiv.org
- Mediterranean Action Plan (MAP)
  - www.mare.no
- Convention on the Conservation of Migratory Species of Wild Animals (CMS)
  - www.cms.int
- Ramsar Convention on Wetlands (Ramsar)
  - www.ramsar.org
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
  - www.cites.org
- APE-Arctic:
  - Stephen Nash: stephen.nash@unep.ch
  - Rossler, Mechtild: M.Rossler@unesco.org
- United Nations Convention Framework Convention on Climate Change (UNFCCC)
  - unfccc.int
- Vienna Convention on the Protection of the Ozone Layer and the Montreal Protocol on substances that deplete the Ozone Layer
  - www.unep.org

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The oil adventure and indigenous people in the Nenets Autonomous Okrug

A story of exploitation of hydrocarbons, federal laws and reindeer in northwest Russia. BY WINFRED K. DALLMANN AND VLADISLAV V. PESKOV

In the Nenets Autonomous Okrug (NAO) – Northwestern Russia live approximately 6500 Nenets and 5000 Komi indigenous people, most of them somehow related to reindeer husbandry. Large portions of Nenets reindeer pastures, especially in the neighbouring Yamal area, were devastated by reckless oil prospecting in the 1960s to 1980s.

Recent years have witnessed an increasing interest in the hydrocarbon occurrences in the NAO. Naturally, people are worried about their future. How have conditions, policies and attitudes changed in modern Russia?

Bad preconditions

In addition to the high unemployment among indigenous peoples, the situation in the reindeer husbandry sector is deteriorating, decreasing numbers of reindeer, misappropriation, absence of appropriate marketing schemes for products. These and other factors provoke a general degradation of indigenous society.

A Federal law on land use rights for indigenous peoples, government and companies is the establishment of transparent contractual relations. Roundtable fora were held. Several oil companies participated in a constructive dialogue, while others – including foreign ones – refused to attend.

The Yasyaev Association and the Union of Geologists and Oil Workers of the North have established a work group to assess the overall problems of the NAO concerned with hydrocarbon exploitation. Oil companies are financing this group, but do not sufficiently participate in problem solving.

The choice is there

Up-to-date technology with clean production, however, is largely employed by other companies such as Polyarnye Svyazi (Russian-American) at Ardalinskoye, TotalFinaElf (French-Belgian) at Haryngaske. So, the choice is there. It is time short, and appropriate attitudes towards environmental problems have still to be developed, both in the companies and throughout the authorities in post-Soviet Russia.

Bringing sustainable development into better focus

The work of the Arctic Council has traditionally drawn its inspiration from the need to protect the sensitive Arctic environment. Our results in this area demonstrate some of the Council’s best work. BY GUNNAR PÅLLSSON

The work of the Arctic Monitoring and Assessment Programme’s (AMAP) working group, dealing with Arctic pollution, is one example of how the Arctic Council is working to protect the Arctic environment. The report of the Conservation of Arctic Flora and Fauna’s (CAFF) working group, of Arctic biodiversity and conservation issues, is another. Increasingly, we are developing more attention to ways and means of eliminating pollution, through the Arctic Council Action Plan (ACAP), which has developed specific action programmes to phase-out hazardous substances. However, an environmental project commanding the greatest attention at this moment is probably the so-called Arctic Climate Impact Assessment (ACIA), a regionally based study of climate change.

There can be little doubt that environmental issues will remain at the core of the Arctic Council. They are also likely to attract growing attention by the world at large, if only because the Arctic is increasingly being seen as an early warning area for other regions, in terms of both long-range transboundary pollution and climate change.

But we must never forget that the Arctic is not just environment. It is home to almost four million people, including more than numerous different groups of indigenous peoples. As it happens, many of the processes described in the Arctic Council’s environmental reports have begun to work their effects through the lives and livelihoods of the people of the region.

This is not a cause for alarm. The Arctic remains a clean environment, as AMAP’s findings make clear. At the same time, some pollutants and changes in climate give reason for concern in certain ecosystems and for some indigenous populations in the Arctic. Pressures are building in areas of the Arctic as a result of economic activities, including shipping, dumping and exploitation of oil and gas, aspects of which have been studied by our working group on Emergency Pre- vention, Preparedness and Response (EPPR) and on the Protection of the Arctic Marine Environment (PAME).

All of those pose serious challenges to the inhabitants of the Arctic region. However, many of the diverse Arctic communities have demonstrated exceptional resourcefulness in adapting to the demanding circumstances of life in the Arctic. In addition, national and international changes affecting the region will necessarily be negative.

FAST FACTS

Polar pollution

Canadian scientists have recently made significant advances in the knowledge of atmospheric mercury in the Arctic. Each year, just after the sun reappears after the long polar night (polar sunrise), mercury is converted to a different form. This new form of mercury is much more easily deposited onto the surface (usually snow or ice at this time of year) than the original form of mercury from the atmosphere onto the surface. Mercury Depletion Event (MDE). Measurements show that more mercury is found in the snow after an MDE, although some may be released back into the air from the surface.

Some of the new form of mercury in the surface snow dissolves in water, and may be converted into methyl mercury – the most toxic form of mercury for wildlife and humans. This happens at the time when plants and animals are starting to prepare for peak summerstine activity and when they are more vulnerable to picking up the toxic form of mercury. Although first discovered in Canada, the same phenomenon has been seen at other northern locations e.g. Ny-Ålesund on Svalbard, northern Norway, Barrow, Alaska; and Andemira, Russia. It has even been found to occur in Antarctica.

Very few radioisotopes being released from European nuclear plants are reaching the Canadian Arctic Ocean.

New Persistent Organic Pollutants (POPs) are being detected and are rising in ringed seal, beaked and narwhal blubber.

Scientists are more concerned about the effects of the POPs on polar bears than any other wildlife species.

Arctic foxes feed at various levels in the food web but this does not appear to affect their levels of POPs. Most levels are quite low and, overall, Canadian foxes contain lower levels of POPs than Arctic foxes from Svalbard, the Norwegian mainland or Iceland. Mercury levels have almost doubled in eggs of thick-billed murres since 1975, and increased in northern fulmars by 50 percent. The higher levels are found in predatory birds such as gulls and auks.

The levels of POPs are decreasing in eggs.

Plants in northern Canada contain only low levels of POPs and heavy metals. However, some plants near local contaminant sources e.g. goldmines may contain higher levels of certain contaminants such as arsenic.

Source: Canadian Arctic Contaminants Assessment & report

Weber no look at the Arctic in terms of perin and risk and opportunity, there can be little doubt that the time has come to devote more attention to the social, economic and cultural life of the region. We need to address both sides of the coin, society and nature, to arrive at a balanced notion of sustainable development.

Responding to this need, the Arctic Council has launched several initiatives focusing on the people of the Arctic, their living conditions and the factors that affect those conditions. The Arctic Human Development Report (AHDR) and the Survey of Living Conditions in the Arctic (SLCA) are among the projects that come to mind in this context. Taken together, such efforts should not detract from work that focuses on the environment. On the contrary, they should reinforce that work and bring sustainable development in the Arctic region into better focus.

Ambassador GUNNAR PÅLLSSON from Iceland is Chair of the Arctic Council. Iceland joined the Council in 1995. Iceland is also a member of the Arctic Council's Sub-Commission on Environmental Protection (SC-EP), the Secretariat. In 1995-1996 and 1997-1998, the Secretariat is located in Reykjavik. Iceland is also a member of the Arctic Council's Sub-Commission on Environmental Protection (SC-EP).
Western science and traditional knowledge – no gap to bridge

How do indigenous peoples participate more effectively in decisions which influence their lives? The similarities between western science and traditional knowledge suggests an answer. By Jack Dowie

A widespread belief remains that there is a gap between traditional knowledge and western scientific knowledge. A gap that – at least to those who do not wish to privilege certain groups completely – has to be bridged in some way. The suggested treatments usually involve more and better communication and exchanges based on greater mutual respect, coupled with a greater presence on decision-making bodies. These people and institutional therapies are based on a misdiagnosis. There is no gap. What we have are two activities with fundamentally different objectives, as distinct as farming and cooking. We need to sort out our ideas, not our organisation around. Western science is a truth-focused, certainty-seeking Knowledge Technology (KT). Traditional knowledge is a decision-focused, uncertainty-respecting and value-based Decision Technology (DT). The KT-DT distinction can be simply illustrated if we ask a key question:

Observations can guide. How many observations does one need when studying the relationship between a particular ecological sign and the presence of a prey or a predator or a source of pollution?

Western science demands a very large number of observations – hundreds, perhaps thousands – in order to provide the statistical power to detect a relationship of a given magnitude. This demand is completely legitimate, because western science is a Knowledge Technology, gate-keeping the truth for its own sake, i.e. without any weakening of standards for utilitarian reasons such as decision making.

Traditional knowledge – and we can extend this to include much of the tribal knowledge that is now non-indigenous peoples and possessions – suggests that a very much smaller number of observations may be optimal.

How many observations do we then need? Possibly as little as seven, the number of bits of information plus or minus two that George A. Miller, professor of psychology at Princeton University, suggested most human beings can hold in their short term memory. Israelis psychologistYaakov Karevin has been exploring the evolutionary origins of this number and concluded that it may indeed have arisen as the optimal number of observations for a hunting group to take into account. Why might the last seven observations be better than the last 1, the last 70, or the last 700? One obvious reason is that if a larger number of observations takes more time to accumulate, the earlier observations may become out of date and irrelevant if the situation is dynamically changing, as it be in many indigenous societies.

The other reason is more interesting, and required us to redefine the decision: how many observations are necessary between the two technologies. If we use small unrepresentative samples we are likely to detect a correlation e.g. between a sign and a predator or a prey or a source of pollution that may not in fact be present. How could this be a good thing?

We will – whether we are indigenous people of the Arctic or non-indigenous people of the urban west – accept lots of false leads in order to maximise our chance of detecting a true lead such as we accept have to do when e.g. screening for cancer. This is because often it is more important to avoid failing to detect something when it is there (a False Negative) than to wrongly detect something when it is not (a False Positive).

Based on real world consequences

In the real world the criteria for optimal information search must be based on the real world consequences of decisions. These criteria must reflect the actual lived and asymmetric trade-off between False Positive and False Negative errors. In certainty-seeking science, on the other hand, we rightly want to avoid detecting something which is not there at almost any cost.

We have here a clear and simple illustration of the difference – no gap – between the Knowledge Technology that is a western science and the Decision Technology which is a traditional knowledge. We can also confirm the necessity of a Resolution Technology – a way of establishing the necessary error traderoffs – for supplying the inputs needed to meet these criteria.

Any type of knowledge must be an amalgam of traditional beliefs. These beliefs are based on the probabilities of things happening or being the case and of traditional values concerning the desirability and worth of particular states, outcomes and processes. The amalgam may be implicit, deep and holistic. It may appear inexpressible to decompose this whole into its component parts. Possibility it will be against its very spirit and spiritual basis to do so.

New decision processes must be non-framed.

Unfortunately, the number and complexity of decisions affecting indigenous lives are now changing at historically unparalleled speed. These decisions, increasing impact on and involve both indigenous and non-indigenous groups. In order that these decisions be taken coherently and transparently, as well as equally, they almost certainly require a non-traditional decision process such as Decision Analysis. This is a rigorous way of evaluating options in which the beliefs and values of all stakeholders can be incorporated and their implications explored.

A clear separation of beliefs and values is the price indigenous peoples have to pay to participate effectively in decision-making crucial to their lives. If indigenous peoples are to have their own interests fully represented in these analyses and decision-making processes they will need to disentangle the belief and value components of their traditional knowledge and build their capacities in these alternative decision processes.

This is why the Arctic is a natural seat at the table, the true route to empowerment for indigenous peoples.

The media on the poles

During the last year the focus of the world media has again turned to both poles. The stories, like the polar lands, are dramatic: collapsing ice sheets, growing ozone holes affecting climate, contaminants in the food and peoples of the north, oil and gas interests squaring off against caribou. They fascinate us, they can frighten us, but they are remote to most of us. Or are they? After the record-breaking summer in Europe and devastating wild fires in both hemispheres, climate change is very much on our minds. The contaminants found in indigenous peoples are not from local sources but from thousands of kilometres distant. And regional conflicts have forced us again to consider the riches of these vast lands. The stories have been featured from England to Ethiopia and from Iceland to India.

The Guardian, UK. November. October 2003

and we are happy to accept contributions of other stories to include in our online archive.

Although there is a concern that the Antarctic ozone hole is growing larger, the evidence is not yet overwhelming. The October 2003 readings show a smaller size than the same month of 2002 – a time when the hole was growing to the record size.

In 2002, the hole in the ozone layer over the Antarctic reached a record size, the United Nations’ weather organization says. Measurements over and near the southern-most continent suggest the ozone declined more quickly this year than in 2001. The hole reached record size for almost the first time when it was first detected in 1988.

The Arctic ozone hole grows to record size

CBC, Canada. September.

In contrast to 2002, the hole in the ozone layer over the Antarctic reached a record size this year, the United Nations’ weather organization says. Measurements over and near the southern-most continent suggest the ozone declined more quickly this year than in 2002. The hole reached record size for almost the first time when it was first detected in 1988.

Arctic ozone hole grows stronger: wind studies

CBC, Canada. October.

New studies from a Canadian scientist show how the ozone hole over Antarctica is likely changing wind patterns and ocean currents in the southern hemisphere.

www.cbc.ca/stories/10/10/ ozone31010

Look for Hepatitis C warning signs

Jannau Empire, Canada. October.

Alaska Epidemiology estimates that as many as 6,000 Alaskans are infected with Hepatitis C virus. A small fraction of them are aware of it, as it can take as long as 20 years to manifest their symptoms. They are at risk for the disease, regardless of the color of the skin or eyes, nausea and vomiting, extreme fatigue, loss of appetite, dark skin or unexplained weight loss.

www.arctichealth.org/recentnews. html

Antarctic group sets up asset management

Computerworld, UK. August

This series of stories focuses on the Australian Antarctic Division (AAD), which conducts research and conservation work to the protection of the Antarctic environment, and how the division implements asset management software at its Tasmanian headquarters and other bases which are inaccessible most of the year.


Polar Environment Times No.3

October 2003

and we are happy to accept contributions of other stories to include in our online archive.

BY JACK DOWIE

In this story the BBC tells how they visited Murmansk to look at an old British base and how they were rescued after its mother was killed in a car accident.

This story talks about how the Bush administration has been forced to take a stand against caribou. They fascinate us, they can frighten us, but they are remote to most of us. Or are they?

This story is a close-up on polar bears and the tundra.

A story on the political play behind the debate on drilling in the Arctic. The Arctic has fractured, releasing a domestic war over the potential for oil in the Arctic.

This series of stories focuses on the Antarctic National Wildlife Refuge in Alaska and an account of the various interests at stake. The guide provides links to relevant stakeholders. www.guardian.co.uk/flash/03/5860, 349642,00.html

Warning warming for Antarctica

The Guardian, UK. September.

This story tells how the face of Antarctica will change in the next 100 years as ice melts, glaciers retreat, penguins move south and green plants begin to colonise bare rocks of the Antarctic peninsula.

White House persists in Alaska oil dig

The Associated Press, US. March.

A story on the political play behind the debate on oil drilling in the Arctic.

Bear facts

The Guardian, UK. March.

This story is a close-up on polar bears and talks about how a polar bear cub that was rescued after its mother was killed by hunters has made headlines across Canada, but global warming means that smart renumber of its species may be not so lucky.

What Canadian is climate change story

The Guardian, UK. October.

This story tells how the CBC has told they visited Nunavut to look at an old graveyard in the midst of climate change, what they would thought would be a chilly, muddy mess, getting its teeth against the Arctic gales and the worst that centralised planners could do to search and scar the forests and the zoo.

The UK’s Arctic graveyard

CBC News Online, UK. October.

The BBC in this story tells how they visited Nunavut to look at an old graveyard in the midst of climate change, what they would thought would be a chilly, muddy mess, getting its teeth against the Arctic gales and the worst that centralised planners could do to search and scar the forests and the tundra.

BBC News Online, UK. October.

A story and video talking about beaches in the Arctic, which are changing in shape due to climate change.

This story reveals how Malaysia is moving to become the first Muslim nation to join the Antarctic Treaty, in what would mark a big change of heart for its Prime Minister, Mahathir Mohamed.

The UK’s Arctic graveyard

CBC News Online, UK. October.

A story about the breaking up of polar bears and the tundra.

The story talks about how the Bush administration, rebuilt by the Senate, will not give up the fight they opened Alaska wildlife refuge to oil drilling.
New directions for managing Russia’s Arctic

In a collaborative project GRID-Arendal works to implement integrated ecosystem management in north-western Russia. By Tinna Kurvits

In a rapidly industrializing world, the Arctic is still one of the least impacted areas on the globe. We know that this region faces severe and growing pressures from human activities. We know too that the list is long: habitat fragmentation and destruction, biodiversity decline and loss, over-harvesting, contamination and pollution, climate change. Worsening issues at any level but to local people, they can quickly become matters of survival.

As we have found out, the region is very complex. There are significant differences between the numerous Arctic sub-areas. In particular demands an approach that is adaptive and sensitive to rapidly changing needs.

Integrated ecosystem management, or IEM, is an attempt to move in this direction.

IEM is a dynamic process aimed at managing human activities and relationships for the purpose of achieving specific conservation and development goals. By definition, it signifies a shift away from sectoral approaches toward one that looks at the system as a whole, including the people who live there. The situation in modern Russia in particular demands an approach that is adaptive and sensitive to rapidly changing needs.

The results from a collaborative project named ECORA: An IEM project named ECORA represent a cross-section of the progress we have made in bringing new ways of managing nature.

In 1998, leaders from 28 indigenous groups residing in Arctic Russia met to discuss common problems related to their threatened environment and natural resources. By Kathrine I. Johnsen and Valentyn Yemelin

The main output of the 1998 seminar was an assessment report of indigenous peoples' environmental problems, proposed actions and request for help from international fora. This led to the development of the UNEP/Nordic Saami Project for capacity building and participation of Russia's Indigenous Peoples in the sustainable development of the Arctic. The project supports the Russian Association of Indigenous Peoples of the North (RAIPON) and is based on the experience and competence of Nordic Saami organisations in environment and development issues from an indigenous perspective. The project develops links to RAIPON and the UNEP Arctic Programme through GRID-Arendal – the IEM project

The program is unique. It is designed to develop the capacity of the regional and central organisations of the indigenous peoples of Arctic Russia in the fields of environmental knowledge, networking, information, and awareness-raising.

The program further supports sustainable development in Arctic Russia through focused indigenous knowledge and strengthening of the capacity of the indigenous peoples to participate in the process. All program activities are defined from indigenous standpoints and priorities. The program consists of four main activities: Program management and RAIPON capacity building; networking and public relations; local reporting on health, environment and living conditions; and training courses in impact assessment.

Capacity building in the Russian Arctic

In March 1998, leaders from 28 indigenous groups residing in Arctic Russia met to discuss common problems related to their threatened environment and natural resources. By Kathrine I. Johnsen and Valentyn Yemelin

The main output of the 1998 seminar was an assessment report of indigenous peoples' environmental problems, proposed actions and request for help from international fora. This led to the development of the UNEP/Nordic Saami Project for capacity building and participation of Russia's Indigenous Peoples in the sustainable development of the Arctic. The project supports the Russian Association of Indigenous Peoples of the North (RAIPON) and is based on the experience and competence of Nordic Saami organisations in environment and development issues from an indigenous perspective. The project develops links to RAIPON and the United Nations through GRID-Arendal – the IEM project

The program is unique. It is designed to develop the capacity of the regional and central organisations of the indigenous peoples of Arctic Russia in the fields of environmental knowledge, networking, information, and awareness-raising.

The program further supports sustainable development in Arctic Russia through focused indigenous knowledge and strengthening of the capacity of the indigenous peoples to participate in the process. All program activities are defined from indigenous standpoints and priorities. The program consists of four main activities: Program management and RAIPON capacity building; networking and public relations; local reporting on health, environment and living conditions; and training courses in impact assessment.

Program management and RAIPON capacity building

This involves training of RAIPON staff in program and project development and management as well as training and seminars on institutional development.

This activity consists of coordination with other existing or planned donor supported RAIPON projects, feeding into annual reports and fund raising.

Networking and Public Relations

The purpose of this project is to enhance RAIPON’s capacity to inform and communicate externally on the situation of the indigenous peoples of the Northern and Far East. The long-term capacity of the regional chapters of RAIPON to inform and communicate externally and internally is the goal. This includes supporting of RAIPON’s journal and website. Production of a documentary on the living conditions of indigenous peoples of Arctic Russia is in the pipeline.

Local reporting on health, environment and living conditions

The third project is focused on producing indigenous knowledge based reports on health, environment and living conditions of indigenous peoples in Arctic Russia. These reports enable local communities to make their state of environment and living known both within Russia and internationally (including documentation of traditional land use). This involves regional structures and provides input to national, circum-polar and global assessments. Finally, this task also involves training RAIPON members in environmental reporting.

Training course in impact assessments

Ultimately, the program partners are developing a course that will train members of indigenous communities to conduct independent environmental impact assessments and to use other tools to assess projects influencing the rights and interests of the indigenous peoples in Russia. This will include assessments of existing and planned industrial, communication and conservation developments that may have impact on indigenous peoples and their environment. During the summer of 2002, two surveys on indigenous peoples' health, environment and living conditions were conducted in Arctic Russia. Data from the survey is in the process of being analysed. The results will be published late 2003 or early 2004. However, one of the main messages from the individuals in the survey is the lack of access to information. This is connected to the lack of infrastructure, outlined in Taimera Samoevova's article There and back again: accessibility is the key.

Another important output from the survey is that people in general feel they have very little access to the federal authorities that take decisions with a direct impact on the environment, health and living conditions of indigenous communities and individuals.

There is a need to continue developing the ability of indigenous communities to express and report on their state of environment and living.

Each year four issues of RAIPON’s journal Mir korennykh narodov – Zhivaya Arktika (Indigenous World – Living Arctic) are published and disseminated to over 700 indigenous settlements in the Arctic Russia. A set of selected articles from the journal are translated into English and published on the RAIPON website. According to RAIPON, the journal is the most important channel for communication of regional and national information relevant to indigenous peoples in Russia. The regular publication of the journal is one of the printing issues of the program.

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The proposed opening of the Barents Sea for full oil exploitation will accelerate coastal development and conflicts. The chosen lifestyle of the Saami indigenous people in the Barents region is already being destroyed by massive and piecemeal development. Over one-third of their traditional lands have been used by grazier reindeer through thousands of years may already be lost. There is a range of exploration projects in the Barents Sea region with possible detrimental impacts to the Saami people.

BY CHRISTIAN NELLEMANN

Reindeer and Saamis on the run

The proposed opening of the Barents Sea for full oil exploration will accelerate coastal development and conflicts. The chosen lifestyle of the Saami indigenous people in the Barents region is already being destroyed by massive and piecemeal development. Over one-third of their traditional lands that have been used by grazing reindeer through thousands of years may already be lost. There is range of exploration projects in the Barents Sea region with possible detrimental impacts to the Saami people.

The number of reindeer herders and their livestock, while limiting the land debate to individual construction projects. The result of this piecemeal development policy has been dramatic. Over 35 percent of traditional grazing lands are now considered unavailable due to development of road, power lines, cabins and dammed lakes and rivers, most of it the low lying most productive arable areas. In northern Norway alone 300-500 recreational cabins are built every year, most of them in grazing lands. Scientific investigations, for instance, the Reindeer Project, have shown that traditional grazing grounds were gradually lost and finally abandoned by reindeer and their herders due to consecutive disturbance from the resorts. But other threats are emerging.

Future exploration plans

On October 7, 2003, the oil company STATOIL announced “that oil reserves in the region including the Barents Sea may hold oil and gas for over 150 billion USD.” Exploration is already taking place in the Pechora further east, while the routes along the northern coast is of particular interest for the Russian oil fleet. Increasing risk of oil spills combined with intensive commercial fishing by trawlers also interferes with the coastal Saami’s small-scale coastal fisheries. Investigations have shown that while the land-based oil installations are limited in extent, the associated secondary development may have detrimental effects to the Saami’s ability to continue reindeer herding. On Vaagoya, an island home to the first opening of an industrial gas complex related to the Barents Sea gas reserves, the proposed associated development may cut off access to an important calving ground and old sacred sites. But the development doesn’t stop there. Windmill power-boards are being proposed along the coast, adding to the network of roads and power lines constructed across the last decades. New mineral exploration legislations are made to facilitate exploration by mining companies, and logging companies are active in Swedish and Finnish forests used for winter grazing.

New policies can change their fate

The current policy of dealing with the land use issue and future of the Saami reindeer herders by limiting discussions and legal rights to each individual development project locally is taking its toll. Few Saami herders can afford to confront large companies in a lawsuit, and for some results can be depressing. On Seland Island in northern Norway, a small dam project was renewed by a regional power company. The increased regulation of the dam resulted in over 5,600 metres with deep ice crasses, rendering the small narrow lake impassable for its traditional use as a central spring migration route. After twenty years of lawsuits, the local Saami herder won in Supreme Court, which acknowledged the loss of close to 5 km² of spring grazing land. The price he received however was ironic: Apart from covering the expenses, he received around 100,000 Norwegian kroners, the price of an older used car in Norway, for the loss of parts of his calving grounds for future generations.

Loosing one of Europe’s last remaining wilderness areas

The situation of the Saami people through thousand of years. Scenarios now show that if no action is taken to control and define the land area to be protected from piecemeal development, as much as 78 percent of a 20 km deep coastal belt – critical spring, calving and summer pastures – may be inaccessible to herders in 2050. This may become detrimental to the last reindeer husbandry in the region. Policy action has to address the long term cumulative impacts of piecemeal development – recognized also in other parts of the Arctic and globally – will be imperative for the future of biodiversity and indigenous rights to their own chosen lifestyles. For the Saami, the situation is becoming acute.

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The first draft Science Plan will be reviewed at the ICULI meeting in Febru- ary 2004.

Telling the world about the poles

Another goal of the Polar Year is to educate and create public interest and awareness about the polar regions. An education outreach workshop will take place in 2004 and will bring together experienced people from polar communities, museums, schools, etc. This is an opportunity for science organisations, a variety of educators (museums, schools, etc), high profile media people, and UNESCO’s education program representative.

HANNE PETERSEN

2007 might sound like a long way ahead, however, it is already a challenge to get all plans developed and inhabitants and participants engaged for the coming international Polar Year.

In spite of the substantial investment of effort in polar exploration and research over the years, polar regions are not well studied and through internationally coordinated programmes, the relative inaccessibility and challenging environment of these zones have left the poles less well explored and studied than other key regions of the planet.

A new polar year calls to further understand the polar regions and polar processes and highlight the crucial role that the polar regions play in global systems. The poles are a key part of the global system, and drive changes globally. The changes in the poles are occurring but changes are amplified here, too.

The 2007 International Polar Year is multidisciplinary in scope, and envisioned to be an intense, international campaign of co-ordinated polar observers and analysis. It is planned to be bipolar in focus, and with broad international participation. Nations are expected to work together to gain holistic insights into planetary processes, targeted at ex- ploiting and increasing our understanding of the poles and their roles in the global system.

Two times before

2007 is the 125th anniversary of the First International Polar Year (IPY 1882), the 45th anniversary of the Second Polar Year (IPY 1932), and the 50th anniversary of the polar regions according to the Antarctic Treaty System (1959). These years resulted in significant new insights into global processes, and led to decades of invaluable polar research.

The International Council for Science (ICSU) formed an International Polar Year planning group. The task of the group is to identify the objectives and activities of a new polar year, and to propose a mechanism for the design, development and implementation of the activities. One mechanism is to encourage countries to establish National Committees or contact points. Another mechanism is to create initiatives focusing on polar issues among international organisations. The planning group will develop a Science Plan for the polar year, that will initiate scientific programs that would not otherwise occur and at the same time attract the next generation of polar scientists. Themes of such programs will include: exploring the earth’s icy regions; understanding the role of the poles in global change; understanding polar processes; and others.

Awaiting the 2007 International Polar Year

Science topics and outreach workshops are some of the many preparations that need to be in place in four years to mark the Third International Polar Year. By HANNE PETERSEN

The International Council for Science (ICSU) formed an International Polar Year planning group. The task of the group is to identify the objectives and activities of a new polar year, and to propose a mechanism for the design, development and implementation of the activities. One mechanism is to encourage countries to establish National Committees or contact points. Another mechanism is to create initiatives focusing on polar issues among international organisations. The planning group will develop a Science Plan for the polar year, that will initiate scientific programs that would not otherwise occur and at the same time attract the next generation of polar scientists. Themes of such programs will include: exploring the earth’s icy regions; understanding the role of the poles in global change; understanding polar processes; and others.
Poles apart: the uniqueness of Antarctica

The Antarctic, like the Arctic, provides opportunities and challenges for our modern world. Opportunities are framed in the context of science, where the next big discovery might lead to the cure for cancer or to answers from climate change messages. Challenges are those of environmental protection, the coexistence with the largest nuclear free zone in the world, and the recognition of the importance of both polar regions to the health of the global environment. By MICHELLE FINNEMORE

Like the Arctic, the Antarctic region has gripped the human imagination for centuries. Early Antarctic explorers did not even see the great southern land mass until the 19th century, and even when they did, the sightings provided little clue as to what was hidden beneath the masses of ice. Today scientists are the great explorers of the Antarctic and results from their research are helping us to develop a truly global picture of the Earth’s environment.

While the geographic north is water surrounded by land, the southern polar region is a large landmass surrounded completely by water. This circumpolar ocean, the Southern Ocean, was the barrier to continental exploration and even today acts as the guardian of the Antarctic continent.

Legally, the Antarctic is defined as the area south of 60 degrees south latitude. However, the region’s biological boundary can be found at the Antarctic Convergence. The Convergence is a constantly shifting boundary that marks the division between cold Antarctic water, and warmer sub-Antarctic water. A distinct temperature change can be recorded as this boundary is crossed and the Convergence represents a sort of “fence line” which distinguishes the Antarctic ecosystem and its related species from those to the north.

Putting Antarctica in international fora

The treaty that defines Antarctica’s boundaries is known simply as The Antarctic Treaty. It is the core of the Antarctic Treaty System (ATS), the bundle of international laws which govern the Antarctic region. The ATS has become a powerful set of legal instruments. With regular yearly meetings and consensus voting as the only way to develop recommendations and rules on Antarctic governance, the Treaty meetings bring together representatives from forty-five nations and various NGOs to discuss common concerns and protection mechanisms for Antarctica. The Treaty has been hailed as a legal success story, in that it has lasted, and various NGOs to discuss common concerns and protection mechanisms for Antarctica. The Treaty has been hailed as a legal success story, in that it has lasted, and even today acts as the guardian of the Antarctic continent.

All seven territorial claims therefore exist as an amendment to the ATS,冻土带 which was negotiated and signed in 1959, there were only twelve original signatory states. These twelve states are a diverse group of states: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, United Kingdom, United States of America, and the Russian Federation. Because the Antarctic has no permanent or indigenous human population, these twelve nations established the Antarctic Treaty System (ATS), the bundle of international laws which govern the Antarctic Treaty to govern the Antarctic in the interests of all mankind.

The twelve nations that had participated in UNEP GEO-3. GRID-Christchurch can be found at www.gridc.canterbury.ac.nz. Of the twelve original signatory nations, seven make claims to territory in Antarctica. Although these claims are disputed, the Antarctic Treaty froze the operation of these claims thereby stopping any arguments amongst claimants, or between claimants and non-claimants, over the legitimacy of the claims. All seven territorial claims therefore remain as they were at 1 December 1959, and to date, no military action of any kind has taken place on the Antarctic continent. The area remains devoted to peace and science.

Being part of small science communities

The International Polar Year of 1957, which is now known as the International Geophysical Year, saw dedicated science teams lead year-round research expeditions in Antarctica. After this year, the twelve nations that had participated in Antarctic research negotiated and signed the Antarctic Treaty in Washington, DC. Science remains the currency in Antarctica with over forty-five nations now conducting small and large-scale scientific operations there, some year round. With no indigenous or permanent human population, these scientific research stations are the only areas on the continent to support human populations. In the austral summer over 2,500 people live on the continent, with up to 14,000 ship-based visitors also arriving for short (maximum two weeks) visits, primarily in the Peninsula region. In the winter, as darkness closes in, many of the scientists depart and the continent is left with only about 250 human inhabitants.

Extreme similarities

The polar regions share common concerns primarily due to their special resource characteristics that are not found anywhere else in the world. The ecosystems of both polar regions are fragile so that substantial resource exploitation of either living or mineral resources could cause devastating environmental impacts. Both polar regions are dominated by extreme temperatures. At the South Pole, winter temperatures have been measured as low as -89.2°C (-129.9°F). Added to this is the high average wind speed which makes the Antarctic colder than the arctic ice in the winter (20 million km2 in winter, receding to 4 million km2 in summer). Antarctica contains 90 percent of the world’s fresh water, locked up as ice which covers 98 percent of the continent.

Antarctica contains 90 percent of the world’s fresh water, locked up as ice which covers 90 percent of the continent. The Antarctic continent.

To contrast with the north polar region, where the largest land animal is the polar bear, the largest land creature in Antarctica is the flightless midge, an invertebrate that measures less than 12 mm in length. Rise in temperatures and the ozone layer

The ice, ice shelves especially, are being carefully studied by scientists as they are known to be sensitive indicators of global climate change. Sudden loss in global temperatures may be the cause of the sudden collapse of some large ice shelves in the Antarctic Peninsula region.

Although the ecosystems of both polar regions are complex, the Antarctic ecosystem is not home to a wide range of terrestrial animals. The complexity is found in the marine environment of the Southern Ocean. To contrast with the north polar region, where the largest land animal is the polar bear, the largest land creature in Antarctica is the flightless midge, an insect that measures less than 12 mm in length. Hidden resources

In the early 1980s, the oil crisis and the possibility that Antarctica contained some of the world’s greatest mineral resources led the Antarctic Treaty nations to discuss the possibility of mining and minerals activities. A comprehensive mining Convention was negotiated that would have allowed mining activities to operate in and around the Antarctic continent. Opposition to that Convention, primarily from environmental groups, was fierce and the Convention was ultimately shelved. Now there is a new Convention in place the Environmental Protocol which bans all mining in Antarctica for at least 50 years. The Protocol also lays down rules to comprehensively protect the fragile Antarctic environment.

To protect the Antarctic and to respond to these challenges we must educate ourselves so that we are aware of our place in the world and the importance of harmonizing human action with that of the global ecosystem, of which we are an intricate part. We must develop and maintain strong political relationships which will lead to international legal instruments which recognise that even though we are poles apart we still share the common ecosystem of one Earth.

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Additional information on Antarctica is available at www.gridc.canterbury.ac.nz and in UNEP GRID-S GRID-Christchurch can be found at www.gridc.canterbury.ac.nz.