

Strategic and Environmental Impact Assessment in Promoting Sustainable Development in the Changing Arctic

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1. Economic Development Trends in the European High North

The Arctic Ocean, its melting ice and large hydrocarbon deposits are currently attracting the attention of energy industry as well as policy makers, the public and the media. At the same time, the recent rapid economic development of the area is changing the Arctic environment and cultures irreversibly.

The whole Arctic region is being restructured politically, economically and demographically. Characteristic of the process is that by far the greater part of the natural resources is being exported to the world market while goods and public services, on the other hand, are being imported. The customary use of living resources is economically important on a local level and is now linked with the market economy.¹

The Barents Euro-Arctic Region covers Northwestern Russia and the northern areas of Finland, Sweden and Norway. 5.54 million inhabitants live in the Barents area, which is 1.76 million km². On average, there are only 3.4 inhabitants per square kilometer, ranging from 0.3 inhabitants in the north-east to 8 inhabitants in the south-western areas. There are two indigenous Arctic peoples living in this region: the population of Sami people is approximately 60,000-100,000 and of Nenets people around 41,000.²

Expectations regarding future developments in the Barents region are a mix of economic promises and environmental concerns. The Barents region is a major area for investment within Europe. The increase in global demand for energy and natural resources, including all minerals and renewable resources, as well as the recreational value of nature, have made the northernmost Barents region in particular an important area of rapid new economic development. The Chambers of Commerce of Lapland and Pohjois-Pohjanmaa, Northern Finland, estimate that up to € 50 billion will be invested in the Barents region in the next 10 to 15 years. It is predicted that over half of this will be invested in the offshore gas industry, dis-

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¹ Duhaime/Caron 'The Economy of the Circumpolar Arctic' in: Glomsrød/Aslaksen (eds.) *The Economy of the North* (Statistics Norway Oslo 2006) 17-25.

² For comprehensive information on the Barents region, see <www.barentsinfo.org> (3 September 2009).

tributed as follows: Shtokman € 15 billion, Snow White € 9 billion and Victoria € 4 billion.³

Russia's official investment plan for Murmansk Harbor earmarks € 11 billion to increase the capacity of the harbor from 25 to 100 million tons.⁴ The Lapland Task Force (2008) predicted that there will be investments of approximately € 5 billion in Lapland (e.g. mining industry, tourism and related infrastructure), € 1.2 billion in Northern Norway (e.g. tourism, harbor development, power plants), and € 2.8 billion in Northern Sweden (e.g. trade, mining, transportation).⁵ These plans and developments, if fulfilled even partially, will have major environmental and social impacts for the people and environment in the region in the near future.

Due to increasing world demand and global warming, Arctic mining is becoming more profitable and accessible than ever before. In Finland alone there are approximately 40 companies searching for minerals, most of which are international.⁶ The biggest gold mine in Europe was recently opened in Kittilä, Lapland, about 150 km north of the Arctic Circle. There are also proposals to increase the capacity of Kemi harbor, which is located by the northernmost tip of Baltic Sea, from the current 2.3 million tonnes up to as much as 13 million tonnes.⁷

Russia has proven oil reserves of 60 billion barrels, most of which are located in Western Siberia between the Ural Mountains and the Central Siberian Plateau. Russian crude oil production reached 9.2 million barrels a day in 2006. Furthermore, Russia has the largest natural gas reserves in the world, with approximately 1700 trillion cubic feet, and was the world's largest natural gas producer and exporter in 2005.⁸ 70-100% of the gas of Austria, Bulgaria, Finland, Greece, Latvia, Lithuania, Macedonia, Serbia, Slovakia and the Czech Republic originates in Russia. 40-70% of the gas consumed in Poland, Romania, Slovenia, Turkey and Ukraine, and 10-40% of the gas used in Estonia, France, Germany, Italy and Switzerland also comes from Russia.⁹ West Siberia will remain the Russian gas indus-

³ Council of Oulu Region, Pohjois-Pohjanmaan, Liitto (2008) 'Pohjois-Suomen kansainväliset liikenneväylät' ('Traffic lanes in Northern Finland'), B:52 ISBN 978-952-5731-03-3 ISSN 1236-8393.

⁴ Vehmas 'Murmanskin jättimäinen satamahanke käyntiin' *Lapin Kansa* (12 December 2008), see <http://213.214.145.189/cs/Satellite?c=AMArticle_C&childpagename=LKA_newssite%2FAMLayout&cid=1194609409219&p=dummy&pagename=LKAWrapper> (3 September 2009).

⁵ Ministry of the Employment and the Economy 'Työ- ja elinkeinoministeriö. Lappityöryhmän loppuraportti elinkeinoministerille' ('Final Report by the Lapland Task Force to the Minister') (3 October 2008), see <http://www.tem.fi/index.phtml?C=91320&product_id=108&s=2681> (24 September 2009).

⁶ See Geological Survey of Finland (2009) <http://en.gtk.fi/ExplorationFinland/UsefulLinks/mining_explcomp.html> (3 September 2009).

⁷ Port of Kemi, Annual Report (2008) <http://www.portofkemi.fi/suomi/files/KeminSatama_vuosi08.pdf> (3 September 2009).

⁸ Koivurova/Hossain 'Offshore Hydrocarbon: Current Policy Context in the Marine Arctic' (4 September 2008) <<http://arctic-transform.org/download/OffHydBP.pdf>> (3 September 2009).

⁹ Champion/Miller/Osborn 'Gas-Pipeline Spat Shows Signs of Thaw' *The Wall Street Journal, Europe* (8 January 2009) <<http://online.wsj.com/article/SB123131200781860391.html#articleTabs%3Darticle>> (3 September 2009).

try's main resource base for the foreseeable future.¹⁰ Although Europe's dependence on Russian gas has recently been the focus of considerable attention in the media, it may not be widely realized by the general public just where the gas comes from and what consequences its extraction may have for the Arctic natural and social environment.

Tourism is increasing in the Arctic. For example, in Arctic Finland, in Lapland, it is rapidly becoming the most important livelihood, supplanting more traditional businesses such as forestry, mining and reindeer herding. The number of air passengers in Lapland doubled from half a million to almost one million in the period from 1990 to 2007.¹¹ Tourism provides wealth and employment in the region, but as it uses land extensively it can induce adverse environmental and social impacts unless planned carefully.

Reindeer herding and subsistence living are important sectors of primary production for both indigenous and other local people in the Arctic. These livelihoods have a central significance for the cultures and identities of indigenous peoples, and studies show that their cultures are already suffering from the increase of other economic activities. The fragmentation of natural habitats, in particular, has a severe impact on reindeer herding and poses a threat to biological diversity.¹² Modern development calls for improved institutions, empowerment and co-management practices.

2. The Coexistence of Local Traditional and Indigenous Cultures and Modern Industry in the Arctic

Economic development and the wealth it brings are generally welcomed in the Arctic. At the same time, the importance of the natural environment to northern inhabitants has been highlighted because, much more than in the densely populated areas of the south, nature is present in people's everyday lives (fishing, hunting, berry picking etc.). Nature is also a source of inspiration for the arts and for other cultures. If the natural environment were to deteriorate, quality of life would suffer considerably.

Conflicting interests have also arisen, as have protests against some development plans. For example, mining, and the construction of roads, railways and infrastructure compete with subsistence livelihoods as well as with other land use needs,

¹⁰ Ananenkov 'Transmission Infrastructure Development in Russia (Response to Natural Gas Demand Growth)' (paper presented at the 23rd World Gas Conference, Amsterdam, June 2006), see <<http://www.igu.org/html/wgc2006/pdf/paper/add14649.pdf>> (3 September 2009); see also Gazprom in Questions and Answers <<http://eng.gazpromquestions.ru/?id=7#c513>> (3 September 2009).

¹¹ Regional Council of Lapland 'Lapin matkailutilastollinen vuosikirja (Tourism Facts in Lapland-Statistical Review)' (2007) <<http://www.lapinliitto.fi/julkaisut/matkailutilastollinen%20vuosikirja%202007.pdf>> (3 September 2009).

¹² Vistnes/Nellemann 'Avoidance of Cabins, Roads, and Power Lines by Reindeer During Calvin' *Journal of Wildlife Management* 65 (2001) 915-25.

such as, nature protection and outdoor recreation.¹³ In some areas, local people are worried that the reputation of tourism and reindeer meat industries may harmfully be impacted by the activities of international companies seeking uranium in Lapland.¹⁴ Also, plans by municipalities to build wind farms on untouched treeless mountains and hills have faced opposition from herders and the tourism business. In addition, an irresolvable conflict has long existed between reindeer herders and the forestry industry in northernmost Lapland.¹⁵

The negative impact of the rapidly developing oil and gas industry in the Nenets and Yamal-Nenets regions on reindeer herding, which is the central livelihood of the region, is becoming ever more marked. The area inhabited by Nenets, reindeer nomads, hosts the world's largest concentration of domestic reindeer, around 800,000 animals.¹⁶ The research project "Environmental and social impacts of industrialization in Northern Russia" by the Arctic Centre, Finland, has produced a Declaration on the coexistence of oil and gas activities and indigenous peoples in the Nenets region and other territories in the Russian north.¹⁷ It states as follows:

There is an urgent need for broad environmental impact assessment reaching beyond individually licensed and formally bounded oil and gas territories. Holistic assessments should aim to cover future connections and infrastructure developments throughout the region (strategic environmental assessment). The percentage of land developed to date is still relatively small overall in some regions. However, for some migratory herding camps in the Russian North a large percentage of their territory has been affected already in the initial stages so that it will be difficult to cope with further withdrawals as development accelerates in the near future. Such assessments, under indigenous and local participation, should strive to encompass cumulative impacts, and full project life cycle costs. All sides are important to carry out such assessments even though they might not be explicitly required by national or regional legislation. The assessments require sufficient and independent funding that allows them to work thoroughly, with enough qualified personnel independent from companies and administration, and with adequate lead

¹³ Ministry of Transport and Communications Finland (2009): Evaluation of the Transport Projects of the Kolari and Sokli Mining Projects, Publications of the Ministry of Transport and Communications 34 (2009), see <<http://www.ymparisto.fi/default.asp?contentid=306774>> (3 September 2009); Riipinen Mari, Sosiaalisen pääoman skaalaus, Paikallisia ja ylipaikallisia näkökulmia maankäyttöön Nellimissä, Inarissa, Nordia Geographical Publications 37:1, Oulu.

¹⁴ Eerola 'Uranium Exploration, Non-governmental Organizations, and Local Communities. The Origin, Anatomy, and Consequences of a New Challenge in Finland' *Estonian Journal of Earth Sciences* 57 (2008) 111-22.

¹⁵ Ministry of Forestry and Agriculture 'Memorandum Selvitys Ylä-Lapin metsä- ja porotalouden yhteensovittamisesta' Työryhmämuistio MMM 2003:15 (2003) <http://wwwb.mmm.fi/julkaisut/tyoryhmuistiot/2003/tr2003_15.pdf> (3 September 2009).

¹⁶ Forbes/Stammler 'Arctic Climate Change Discourse: The Contrasting Politics of Research Agendas in the West and Russia' *Polar Research* 28 (2009) 28-42.

¹⁷ Declaration on Coexistence of Oil & Gas Activities and Indigenous Communities on Nenets and Other Territories in the Russian North (11 December 2007) <<http://www.arcticcentre.org/?deptid=28060>> (3 September 2009); Forbes 'Vulnerability and Resilience in Social-Ecological Systems: a Contemporary Example from the Russian Arctic' in: Wilkinson/Freudenburg (eds.) *Equity and the Environment* (Elsevier New York 2008) 203-36.

time to assure the highest quality assessment. Such assessments would contribute to local and regional capacity building, because herders would be integrated into the SE(S)A via e.g. traditional knowledge. Indigenous representatives should participate in choosing the personnel for these assessments.¹⁸

3. Strategic and Environmental Impact Assessment

Environmental Impact Assessment (EIA) legislation exists in all the Arctic States and the European Union. It aims at ensuring that impacts of a planned activity are assessed before the activity is permitted. It is a legal procedure which integrates environmental, cultural, social, economic and technological considerations in planning and decision-making. In most countries, consultation of stakeholders and public participation is an integral part of the assessment.

Additionally, the Convention of the United Nations Economic Commission for Europe (UNECE) on EIA in a Transboundary Context¹⁹ has been signed by all Arctic countries, although Russia, the USA and Iceland have not ratified the treaty yet. The treaty obliges States to notify and consult each other on all major projects that are likely to have adverse environmental impacts across boundaries.

The EU States have adopted legislation in accordance with the EU Strategic Environmental Assessment (SEA) Directive,²⁰ which requires that environmental assessments be carried out for certain types of strategic plans and programs. The UNECE Protocol on Strategic Environmental Assessment²¹ has been signed by 38 nations including Norway, Finland, Sweden, Denmark and the EC, but the protocol is not in force yet. SEA is undertaken much earlier in the decision-making process than project EIA, and it is therefore seen as a key tool for sustainable development. The SEA Protocol also provides for extensive public participation in government decision-making in numerous development sectors.

4. SEA and EIA on the Agenda of the Arctic Council

The SEA and EIA processes are clearly among the most central tools in implementing sustainable development in the Arctic. In fact, already in the Rovaniemi Declaration on the Protection of the Arctic Environment signed in 1991,²² the min-

¹⁸ Declaration on Coexistence of Oil & Gas Activities and Indigenous Communities on Nenets and Other Territories in the Russian North (ibid.).

¹⁹ Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) (done 25 February 1991, entered into force 10 September 1997) (1991) 30 ILM 802.

²⁰ Council and European Parliament Directive 2001/42/EC of 27 June 2001 on the Environmental Assessment of the Effects of Certain Plans and Programmes on the Environment [2001] OJ L197/30.

²¹ Protocol on Strategic Environmental Assessment (adopted 21 May 2003, not yet entered into force) <http://www.unece.org/env/eia/sea_protocol.htm> (3 September 2009).

²² Rovaniemi Declaration on the Protection of the Arctic Environment, Rovaniemi (14 June 1991) <<http://arctic-council.org/filearchive/Rovaniemi%20Declaration.pdf>> (3 September 2009).

isters of the Arctic countries committed themselves to a “joint action plan” which included “assessment of potential environmental impacts of development activities”.²³ Finland launched an initiative to draw up principles for environmental impact assessment in the Arctic in 1994, and the Guidelines for Environmental Impact Assessment in the Arctic (EIA Guidelines)²⁴ were duly adopted in the Alta Declaration in 1997 in which the ministers stated that: “We receive with appreciation the ‘Guidelines for Environmental Impact Assessment (EIA) in the Arctic’ ... developed under the AEPS, and agree that these Guidelines be applied”.²⁵ The Senior Arctic Officials to the Arctic Council recommended that “the Ministers encourage countries to commit themselves to the set-up and maintenance of the homepage and to use the homepage for disseminating information on Arctic EIA activities”.²⁶ The guidelines raised issues that are unique to Arctic assessments but they also emphasized universal issues that are particularly important in the Arctic, such as public participation and the use of traditional knowledge.²⁷

The acceptance of the Arctic EIA Guidelines was followed by the establishment of an Arctic EIA website, “ARIA”, to “help developers, authorities and the public in regular information exchange on Arctic EIA to support the maintenance and improvement of EIA practices in the Arctic, to find information on relevant issues” as well as “for disseminating information on Arctic EIA activities”.²⁸ ARIA was also intended as an instrument for education purposes, to provide possibilities for studies and analysis of EIA documents, processes and cumulative impacts on the Arctic.

5. Conclusions and Discussion

The expectations for future investment in the Arctic are huge. The European High North and Northwest Russia are hot spots in this development. At present, ongoing economic development impacts heavily on the land use of the Arctic region and it may pose a threat both to its natural and social environment. The warming climate has the potential to create significant additional forms of stress. However, as this development is still in its initial stage, the opportunities for sound sustainable development in the Arctic are unique. There is still relatively little pres-

²³ Ibid. para. 10.

²⁴ Finnish Ministry of Environment *Arctic Environmental Protection Strategy: Guidelines for Environmental Impact Assessment (EIA) in the Arctic: Sustainable Development and Utilization* (Finnish Ministry of Environment Helsinki 1997).

²⁵ Alta Declaration, Alta (13 June 1997) <<http://arctic-council.org/filearchive/The%20Alta%20Declaration.pdf>> (3 September 2009) Art 3.

²⁶ Report of Senior Arctic Officials to the Arctic Council, Iqaluit, Canada (17-18 September 1998) <<http://arctic-council.npolar.no/Meetings/SAO/1998%20Iq/Default.htm>> (24 July 2009) ch F.

²⁷ Finnish Ministry of Environment (note 24).

²⁸ Report of Senior Arctic Officials to the Arctic Council (note 25) ch F; see also <www.arcticcentre.org/aria> (3 September 2009).

sure on the environment. There are low population densities, people are committed to living in harmony with nature, and at the same time there are huge natural resources which, if planned well, will bring wealth to local inhabitants.

The economic actors of the Arctic have enough knowledge and resources for sustainable development. It is a matter of awareness, understanding and will. The talent is to know how to plan development so that it will leave room for environmental values and allow for the coexistence of local traditional and indigenous cultures. The efficient use and development of Strategic and Environmental Impact Assessment would offer practical tools to guide decision-making in a sustainable manner. In addition to the international scientific forums, the industrial developers have by themselves recently raised the problem of the lack of multidisciplinary scientific data available for the required Impact Assessment in the Arctic. This is a serious problem to which national and international research policy makers and funders must pay attention.

Strategic and Environmental Impact Assessment could be a natural priority on the agenda of the Sustainable Development Working Group (SDWG) of the Arctic Council. The Guidelines for EIA in the Arctic as they are now set out “good practices”, but it would be worth developing them into more exact impact assessment standards in the Arctic. Furthermore, internet could be used to develop an active Arctic environmental and social impact assessment compendium as a helpful tool in impact assessment work for authorities, stakeholders and local people in the Arctic.

ZaöRV 69 (2009)