

Diversifying European Arctic Economies

Background Paper

drafted by the Arctic Centre of the University of Lapland
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This background paper is meant to inspire discussion among participants. It constitutes a starting point rather than establishing the boundaries of dialogue within the workshop. The most important elements of the workshops are participants' assessment of the situation in the region and their ideas.

This paper was drafted by the contractor in the EU Arctic Policy Assessment contract. As such, the ideas presented in this material do not necessarily represent the views of the European Union.



Photo by the Arctic Centre of the University of Lapland

THIS WORKSHOP

Looking from outside the European Arctic, the northernmost European regions are considered to have economies primarily based on extractive sectors. However, the socio-economic landscape of the European Arctic is multifaceted. Regional actors attempt to further diversify northern economies, build needed human capital, boost local innovation and entrepreneurship, and benefit to the greatest extent possible from global developments related to digitalization and the circular economy. These ideas are also expected to contribute to the sustainable development of these regions. This workshop will discuss the status and potential of these trends and strategies in northern peripheral regions. Issues for debate include, among others, new trends in tourism, indigenous entrepreneurship, cold climate technologies, digital connectivity needs, data centres, cold climate testing, and circular solutions in peripheral regions. The workshop will also discuss the contributions of diverse EU funding instruments, including financing for research and innovation. The prospects of vibrant Arctic urban centres and the challenges faced by northern rural communities will be equally considered.

EXAMPLES OF QUESTIONS

- How can we define Arctic sustainable innovation?
- What are the current development and investment trends in the European Arctic?
- What are the prospects for the bioeconomy and the circular economy in peripheral areas?
- What is the role of digitalisation in changing European Arctic economies?
- What are the challenges, obstacles and constraints for the development of a knowledge-based economy and innovation in the North?
- Does human capital in Europe's northernmost regions match present and future economic needs? How can one enhance human capital in the North?
- Can a broader spectrum of economic activities contribute to the promotion of sustainable development in Europe's northernmost regions?
- How can the EU promote economic diversification in the North?

OVERVIEW OF ISSUES

The socio-economic landscape of the European Arctic¹ is characterised by the significant role of the extractive industries and primary sectors (such as mining, forestry, agriculture or fisheries). At the same time, these regions face multifaceted socio-economic and demographic challenges, including gender and age imbalances, depopulation of the Arctic countryside, social problems and changes occurring in the extractive industries. Tackling many challenges in Europe's northernmost regions is more difficult due to peripherality, sparse population, distance to European and global markets, and insufficient public and private industry resources to mitigate development constraints.

While extractive industries (raw materials, hydrocarbons, forestry, and fisheries) remain the cornerstone of northern economies and are important in planning for the future, it is increasingly clear that building a more diverse and resilient spectrum of economic activities is needed if the European Arctic regions are to achieve sustainable development and greater socio-economic resilience. Moreover, the pace of developments in extractive industries is slower than had been expected some years ago. Additionally, various environmental, technical, economic and social constraints and concerns related to the extractive industries have become better understood. One challenge is the volatile nature of extractives related to fluctuations in global resource prices. There is also concern regarding Arctic communities' long-term prospects if extractive activities close down in the future.

There is therefore an increased emphasis in the North on innovation, biotechnology,

bioeconomy, digitalisation, circular economy, new tourism activities, creative industries, and boosting entrepreneurship within Arctic regions. New (often uniquely "Arctic") products and services are promoted. It is hoped that a broader spectrum of activities will make northern economies more resilient, create more good quality jobs, avert demographic decline of the Arctic countryside, and overall allow for economically, environmentally and socially sustainable development of the European Arctic. The Northern Fennoscandian regions are already considered highly-innovative (often innovation leaders) in the European context. There are examples of successful ICT (including e.g. data centres in Norrbotten), bioeconomy or creative companies across the region. A number of cold climate testing facilities have been developed. There are well-functioning clusters (e.g. blue growth cluster in Tromsø) and examples of very good cooperation between academia and business (e.g. the University of Oulu and the Luleå Technical University). Moreover, many indigenous, Sámi and Inuit, entrepreneurs, prove successful in bringing together traditional livelihoods and innovative ideas, turning them into profitable projects.

Tourism is growing across the region with activities such as northern lights tours, ice hotels, and bird watching. New forms of tourism emerge in the region, including food and wellness tourism.

In the North Atlantic regions and Greenland, the potential for blue growth has recently received much attention: the ocean bioeconomy is highlighted in the EU's 2016 Joint Communication, as well as in regional, national and Nordic analyses and strategic documents. One of the challenges for

(Greenland, Iceland, Faroe Islands), with adjacent maritime areas.

¹ European Arctic is defined here as comprised of Northern Fennoscandia (covering generally Northern Sparsely Populated Areas regions) and North Atlantic

businesses and policymakers is to gain more value from extracted marine resources. Biotechnology is central to such an aim, including for instance the production of marine-based enzymes, bioactive compounds, biochemicals, cosmetics, oils, vitamins, and dietary supplements. North Norway and Iceland are already at the forefront of these developments, with viable biotechnological clusters established. Northern businesses practice innovations from fish skin transplants for skin and tissue repair to using disposed guts and entrails as raw materials for chemical industry. Alongside biotechnology applications, new blue economy sectors emerge. For instance, seaweed collection and farming for food, feed, fertilisers, biofuel production and power generation has been for several decades practiced in southern Canada and Europe but now gradually is finding its way into the Arctic. Freshwater aquaculture is growing, partly as a result of technological advancements. Bioprospecting may in the future constitute an important facilitator for new developments.

Northern regions are among the leading regions in strategic planning for innovation, exemplified by Finnish Lapland's Research and Innovation Strategy for Smart Specialisation. The situation is different in Greenland, where many barriers to innovation (e.g. human capital challenges) prevail. Notwithstanding, there are a number of highly innovative businesses in Greenland that have successfully overcome structural constraints, especially in the areas of bioeconomy, tourism and creative industries.

However, the European Arctic is a very diverse space, with different situations in a few relatively dynamic urban centres, characterised by high levels of innovation and economic success (e.g. Tromsø, Luleå, Oulu, Reykjavik, Kemi-Tornio and to some extent Rovaniemi), which contrasts with the often

struggling countryside faced with demographic decline. Some regions, such as Troms or Norrbotten, perform well in terms of promoting and utilising innovation and endogenous entrepreneurship better than others, such as Lapland or Finnmark. Greenland experiences similar challenges but often with greater intensity, with connections between communities being almost fully dependent on air transport and a comparatively low percentage of its population having completed higher education.

The level of innovation and entrepreneurship within Northern communities as well as the level of education of its residents provide an important frame of reference for policy-making. Education, research, entrepreneurship and innovation are closely linked, forming a basis for a knowledge-based economy and driving bottom-up development. Arctic local knowledge and non-technological innovativeness are important elements of this framework. More diverse regional economies are "more conducive to the creation of innovation" and inter-sectoral dynamics may foster innovation spillovers from one sector to the other.

Growth and diversification of European Arctic economies could create new markets for companies from across Europe as well as result in new investment opportunities (which is also suggested in the EU's 2016 Joint Communication). Partnerships between innovative companies and research institutions from the European Arctic and the rest of Europe could benefit from growth and innovation across the EU.

CHALLENGES AND OPPORTUNITIES FOR ACTION

Human capital matching regional developmental needs

Facilitating developments both in a broader spectrum of economic activities and extractive industries depends on the availability of skilled professionals. In the peripheral regions that have strengthening of knowledge-based economy and innovation as part of their development strategies, human capital is a central concern. Lack of human capital or a mismatch between skilled workers and labour market needs are noticeable across the European Arctic, although some areas (particularly in Norway) or localities (Kiruna and Luleå in Sweden) experience an influx of professionals due to growth in the mining, blue economy, ICT, and data centre sectors.

As compared to other parts of the European Arctic, Greenland experiences particular challenges in building a knowledge-based economy and utilising opportunities associated with new technologies. Adequate human capital and education are among the key barriers. Nonetheless, in the past Iceland and the Faroe Islands to a great extent managed to overcome similar difficulties; there appears to be no reason why the same processes could not occur in Greenland in the long term perspective.

There is an outflow of young professionals towards southern socio-economic centres (especially persons educated in the fields of science, technology, engineering and mathematics). Acquiring education and skills often requires young people to move to southern urban centres, and – although incentives exist in many countries – not everybody is willing to come back to work and re-settle in the North. Many locations lack a diversified labour market offering opportunities for whole families. This is a

particular challenge in Greenland, where those leaving to acquire higher education often go to Denmark, and many do not return to Greenland after completing their studies. This means that not only smaller communities, but Greenland a whole lose the ability to expand its human capital.

At the same time, regional planners attempt to support developments and industries that make use of human capital already present in the region. This includes making use of indigenous and local expertise and skills related to traditional activities.

In the European perspective, the free movement of labour in the EU/EEA area may support filling in human capital gaps while at the same time creating opportunities for Europeans in new or expanding European Arctic industries.

Existence of critical mass within Arctic regions

Experts highlight a lack of regional critical mass for generating viable commercial activities, access to needed capital, a sound basis for the development of local human capital, or having access to large-enough markets (lack of economies of scale).

Among options to mitigate limited economic critical mass is greater cooperation and integration across Northern Fennoscandia, a common market for goods, services (including public services) and labour, as well as stronger connections to partners across Europe.

While much of the European Arctic is located within the EU/EEA as well as the Nordic labour market and, workers and companies operating in the region continue to experience various border obstacles. These obstacles influence the match between human capital and labour market needs, constrain the provision of services across borders, and affect the creation of European Arctic-wide business projects.

Innovation-friendly regulatory, institutional and funding environment

A major challenge for northern regions is to create a regulatory, institutional and funding environment that can support innovation, endogenous entrepreneurship, and a knowledge-based economy. Some available policy instruments are: building up of regional innovation systems (networks of actors, institutions and programmes), improving accessibility and connectivity (both within the regions and between the regions and major population and economic centres), and building human capital. Resources (for example coming from EU programmes or national funding) are currently dedicated (among other things) towards building up business-academic clusters, transnational networks, training programmes or improving accessibility and connectivity.

Access to European and global markets

Many of the economic activities to be discussed in this workshop require European Arctic socio-economic actors to access European and global markets and value chains. The Nordic northern peripheries are among the least accessible regions in Europe (measured by ground accessibility). Insularity, one-directional linkages, a proportionally high dependence on air and maritime transport, the dominance of north-south connections (as opposed to east-west connections) and high costs are issues all modes of Arctic transport face. In remote regions, communication technologies provide crucial opportunities for people and services, including education, entertainment, health, administration, as well as social and political life or identity building. While coverage and digital competence appear to be strong in the European Arctic, the costs, quality and capacity of the networks may pose significant limitations in locations such as Greenland. Intra-regional connections are

crucial, in terms of both infrastructure and spaces for co-operation, as actors functioning in the same economic, social and physical environment are better positioned to build networks necessary for the emergence of a knowledge-based economy. However this will be discussed in greater detail in the workshop dedicated to transport and accessibility in the European Arctic.

Availability of financing for sustainable innovation

Innovative activities in peripheral regions are often carried out by small and medium enterprises. While the European Arctic regions are characterised by high levels of innovation and economic actors are seen as ready to take risks, access to financing may be a major challenge. Various options exist, including financing lines of the European Investment Bank as well as the EU funding programmes. However, obtaining financing for innovation in Europe's peripheries remains challenging.

Sustainability of economic activities

Digitalisation, the circular economy, the creative industries and tourism are often seen as allowing peripheral regions to diversify away from extractive industries and allow for greater social, economic and environmental sustainability. However, this is not necessarily always the case. While the focus of discussion on sustainability in the North is often on the extractive industries, for instance tourism, cold climate testing or data centres are may also have adverse environmental and social impacts locally.

POLICY RESPONSES IN THE 2016 JOINT COMMUNICATION²:

- The EU should support the deployment of innovative technologies in the Arctic.
- The European Commission will explore how Horizon 2020 could speed up the translation of research outcomes into cold-climate technologies and services with commercial potential.
- The Commission will make a special effort to promote the conditions for Arctic innovation and business opportunities as it implements its strategies for a Digital Single Market and in upgrading the Single Market.
- The Investment Plan for Europe is operational, and could potentially be used to support infrastructure projects in the European part of the Arctic, including Greenland.
- The Commission will set up a European Arctic stakeholder forum with the aim of enhancing collaboration and coordination between different EU funding programmes (via identifying key investment and research priorities).
- The European Enterprise Network has been particularly successful in ‘coaching’ Arctic SMEs at their request; it is driven by strong demand in the region. The Commission will continue to support this activity.
- The EU will also promote an integrated pan-Arctic observing system through the GEO Cold Region Initiative as an essential tool to study, forecast and assess changes that support sustainable development in the region.

EXAMPLES OF RELEVANT EU POLICIES AND ACTIONS

- A number of EU programmes cover the European Arctic: cohesion funding in North Finland and Sweden, Bothnia-Atlantica, Interreg North, Kolarctic ENI (European Neighbourhood Instrument) and the Northern Periphery and Arctic Programme (NPA) 2014-2020. The NPA focuses on small and medium-sized enterprises, innovation, and sustainable resource and energy developments.
- The EU-Greenland Agreement supports education, vocational training and the development of human resources (Greenland will receive over EUR 217 million in 2014-2020). Greenland will receive over EUR 217 million in 2014-2020
- Horizon 2020 (EU research funding supports innovation across Europe, including for instance Ocean Research and Blue Growth Potential)
- Connecting Europe Facility in Telecom supports deployment of digital service infrastructures and broadband networks across Europe.
- EU Blue Growth Strategy (components: development of sectors with high growth potential, including aquaculture, coastal tourism, ocean energy, seabed mining; building knowledge, legal certainty and security; sea basin strategies)
 - Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (2012)
 - Communication from the Commission: Innovation in the Blue Economy: realising the potential of our seas and

² European Commission and The High Representative, ‘An integrated European Union policy for the Arctic’, Joint Communication, JOIN(2016)21final (27 April 2016).

Oceans for jobs and growth - COM(2014) 254/2

- Report on the Blue Growth Strategy: Towards more sustainable growth and jobs in the blue economy (2017)
- EMODnet-Arctic (European Marine Observation and Data Network, analysis of available Arctic marine data and identification of gaps)

THE BACKGROUND PAPER BUILDS ON:

Dubois, A. and Roto, J. (2012) Making the best of Europe's Sparsely Populated Areas. On making geographic specificity a driver for territorial development in Europe, Stockholm.

Exner-Pirot, H. (2015) Innovation in the Arctic : Squaring the Circle, 1–10.

Husebekk, A., Andersson, M. and Penttilä, R. E. J. (2015) Growth from the North. How can Norway, Sweden and Finland achieve sustainable growth in the Scandinavian Arctic? Report of an independent expert group, available at

http://valtioneuvosto.fi/documents/10616/1095776/J04_15_Growth+from+the+North_net.pdf/2613b2d6-96f8-4ca1-813a-658eaa7f858.

Lapland Chamber of Commerce (2016) Arctic Business Forum Yearbook 2016, Rovaniemi.

Larsen, J. N. and Fondahl, G. (eds) (2015) Arctic Human Development Report. Regional Processes and Global Linkages, Copenhagen: Nordic Council of Ministers.

Olsen, L. S. et al. (2016) Sustainable Business Development in the Nordic Arctic, Stockholm: Nordregio Nordic Centre for Spatial Development.

Petrov, A. N. (2014) 'Creative Arctic: Towards Measuring Arctic's Creative Capital', Arctic Yearbook 2014 149–166.

Regional Council of Lapland (2013b) Lapland's Arctic Specialisation Programme, Rovaniemi, available at www.lapinliitto.fi.

Stepien, A. (2016) Other futures for Arctic economies? Searching for alternatives to resource extraction, Rovaniemi, available at <http://lauda.ulapland.fi/handle/10024/62539>.

Stępień, A., Koivurova, T. and Kankaanpää, P. (2016) The Changing Arctic and the European Union, Leiden - Boston: Brill/Nijhoff.

Stępień, A. and Koivurova T. (2017), "Arctic Europe: Bringing together EU Arctic policy and Nordic cooperation", Publications of the Government's Analysis, Assessment and Research Activities 15/2017 (Prime Minister's Office).

YOU MAY ALSO CONSULT:

Rasmussen, R. et al. (2011). "Megatrends". Nordic Council of Ministers, Copenhagen.

Stepien, A., Koivurova, T. and Kankaanpää, P. (2014). "Strategic Assessment of Development of the Arctic: Assessment Conducted for the European Union", Arctic Centre of the University of Lapland for the European Commission, available at www.arcticinfo.eu/sada.