Briefing Note

Innovations for the Arctic through Cross-border Cooperation

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The Arctic region is an area of growing strategic importance, especially in terms of increasing access to natural resources and new transport routes. Nevertheless, the extreme Arctic climate makes the region a challenging place to live and sets lots of tasks in creating an attractive and comfortable environment for the people. There are supporters and opponents of Arctic exploration, thus the Arctic has become a space of collision and intersection of interests for a number of global actors (states, TNCs, NGOs). Many Arctic people are concentrated in the border areas with large disparities, considered as peripheral and lagging behind others. However, the European experience of cross border cooperation (CBC) has proven itself as an effective tool for supporting stability and prosperity of border territories. It is believed that CBC has the potential to transform a border into a possibility for development. Since the 1980s, the EU has been providing border regions with the financial means (INTERREG) to boost co-work in finding solutions to common challenges and to achieve a more balanced and harmonious EU territory.

Most of the Arctic zone of the USSR was closed to foreigners and it was the central authorities who took care of the Northern territories' development and supply. The situation changed with the collapse of the Soviet Union, the establishment of the Arctic Council and introduction of Technical Assistance for the Commonwealth of Independent States.

The North-West Russian regions also got access to cross-border funding after Finland and Sweden joined the EU. Large-scale CBC projects were aimed at improving border infrastructure (communications, roads, etc), while small projects fostered people-to-people contacts as well as networks between local communities. In the late 1990s, many activities promoted by the Nordic partners were new, even innovative for Russians. Internet expansion, health care legislation reform, and construction of pollution control facilities would have been impossible without foreign investment and expertise. When the European neighborhood and partnership instrument

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were launched in 2007, the Russian Federation began to co-finance CBC programs, declaring equality of partners from both sides of the border. The structure of the Russian economy is still characterized by the dominance of large companies and a small number of high-tech industries. However, the state strategy for the development of the Arctic zone relies on an innovative and restorative approach with the aim of forming a new technological basis.

Nowadays smart specialization of regions is one of the key European directions to gain sustainable and inclusive growth. Sweden, Denmark, and Finland are the top performers according to the European Commission's Innovation Union Scoreboard 2015. In order to find out how to strengthen the innovation capacity of regions, in 2013 the OECD conducted case studies of six cross-border areas, including four Nordic examples: the Bothnian Arc (Sweden-Finland), Hedmark-Dalarna (Norway-Sweden), Helsinki-Tallinn (Finland-Estonia), and the Oresund Region (Denmark-Sweden). The studies confirmed that growth opportunities can come from working effectively with a neighbor. Geographic proximity remains important for the innovation process. Some major benefits for the regions from CBC in innovation are wider business and knowledge networks, higher quality products and services, diversity of assets, greater visibility with national policymakers, and internal and external recognition. For instance, the Bothnian Arc collaboration was initiated by the mayors of Oulu and Luleå (300 kilometers apart) seeking to diversify from the traditional mining, forestry and metal sectors. Due to the Nordic tradition of cooperation and common areas of specialization as well as complementary expertise (ICT cluster, innovation ecosystem) both areas are developing an internationally recognized brand as the technology hub of the north.

The interrelation of CBC and innovations led to the formation of a new concept, cross-border regional innovation system. The researchers from the University of Surrey define dimensions and measurable indicators of CBC in a regional innovation system: economic structure and specialization (statistics), science base (publications), nature of linkages (patents), institutional set-up (common institutions), and accessibility (cross-border traffic). The authors stress that due to availability issues, the suggested indicators depict innovation in a rather narrow 'science, technology and innovation' mode (Makkonen et al., 2016). We suggest using cross-border projects for a broader view, including also the 'doing, using and interacting' mode of innovation.

The implemented projects under the Kolarctic ENPI CBC make it possible to assess the intensity of cross-border contacts and define functional area for cross-border innovations. The contiguous regions of the relevant programme are: Lapland in Finland, Norrbotten in Sweden, Finnmark, Troms and Nordland in Norway and Murmansk Oblast, Archangelsk Oblast and Nenets Autonomous District in Russia. The population of the program area is about 2.87 million people, and almost 70% of them live in the Russian part. The total budget allocated for 51 projects was 70.48 million Euros. The projects were implemented under three priorities: economic and social development, people-to-people cooperation and identity building, and common challenges.

The project profiles (https://www.keep.eu/) provide the information about the leading organization, partners, main goals and achievements. Table 1 shows the number of implemented projects between regions under the Kolarctic CBC 2007-2013 and density of interregional links.

Table 1. Density of Interregional Links in Kolarctic CBC

Region	Lapland	Murmansk	Norbotten	Finnmark	Troms	Arkhangelsk	Nurland	NAC
Lapland (FI)	-	35	17	13	12	11	7	4
Murmansk (RU)		-	17	12	10	7	7	2
Norbotten (SE)			-	5	6	8	4	-
Finnmark (NO)				-	5	3	4	-
Troms (NO)					-	5	3	-
Arkhangelsk (RU)						-	3	1
Nurland (NO)							-	-
NAC (RU)								-

Source: https://www.keep.eu/keep/programme/147/2007%2B-%2B2013%2BKolarctic%2BENPI%2BCBC

The majority of leading partners represent Finnish organizations (23 projects), then Murmansk Oblast (6), Norbotten (4), and Troms Finnmark (3). It is particularly remarkable that more than half of the projects were initiated by organizations from Lapland (23 projects). In addition, applications from educational institutions predominate: University of Lapland (7), Lapland University of Applied Sciences (5), and Lapland Vocational College and University of Oulu. The high level of network interaction is evidenced by the participation of regional representatives and enterprises from at least three countries, as well as the number of partner-organizations from 3 to 20. For example, the Northern (Arctic) Federal University named after M.V. Lomonosov became part of the consortium for the implementation of 6 international projects. Among the Swedish institutions Luleå University of Technology took part in more than 10 projects on tourism, geology, logistics and ICT. For example, collaboration between the academic institutions and the ICT industry was increased due to "Kolarctic IT Education, Networking, Partnership and Innovation". The special cooperation interest in innovations is demonstrated by research institutes, secondary and higher educational institutions in the Arctic. Only five projects do not have a research or educational component. The contribution of Kolarctic projects to the development of universities is obvious, because it increases academic mobility, networking, stimulates original educational products, opens new scientific directions and attracts extra funding.

The projects that affect human health and environment are implemented by the leading regional organizations – the Norwegian Institute of Air Research (food security), Finnish Radiation and Nuclear Safety Authority (radiation safety) and the State Regional Center for Standardization, Metrology and Testing in the Murmansk region (response to oil spills). For instance, the project "Coastal Environment, technology and innovation in the Arctic" resulted in the integrated approach to monitoring the coastal environment and developing technologies to combat pollution.

Cross-border programs are platforms for discussion among public and private actors that allow revealing regional opportunities and planning investments in competitive projects. Many projects are coordinated by municipal and regional authorities, especially from the Russian regions of

Murmansk and Arkhangelsk. The share of commercial enterprises and business associations is high in projects connected with tourism, innovations, and youth employment. Undoubtedly, international projects give companies a competitive advantage in introducing technologies, training personnel, working out mechanisms for interaction with the authorities etc. The less integrated and effectively more remote is the Nenets Autonomous District where only two projects were implemented (on the use of renewable energy sources and the launch of ethnic and ecologically sustainable tourism).

Based on the project's goals, it is possible to identify the priority areas of Arctic development: effective use of energy, development of mining and construction industries, information and communication technologies and tourism. The greatest importance is given to keeping traditional agricultural industries (reindeer husbandry, hunting and fishing) and promoting plant growing in northern latitudes. The steady directions include support of Indigenous peoples, and promotion of the Nordic identity and Barents culture. However, a cooperation dynamism is still restrained by a lack of regional regulative powers, visa issues, language barriers etc.

Nevertheless, international projects offer opportunities for the Arctic regions to get access to the accumulated knowledge and establish stable data transfer. There is a unique research and educational potential with a wide range of competences in Northern Europe. Established contacts and high concentration of projects in the region lead to the consolidation of local communities for addressing common challenges. Thus, the Kolarctic programme region has every reason to become a knowledge-intensive one. Further innovative development can be connected with border clusters that largely depend on the implementation of large investment projects in the Barents and Baltic regions.

References

Makkonen, T., Weidenfeld, A. and Williams, A. M. (2016), Cross-Border Regional Innovation System Integration: An Analytical Framework. Tijdschrift voor economische en sociale geografie. doi: 10.1111/tesg.12223.

OECD (2013), Regions and Innovation: Collaborating across Borders, OECD Reviews of Regional Innovation, OECD Publishing. Retrieved from, http://dx.doi.org/10.1787/9789264205307-en.