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PROPOSALS
for multilateral initiatives for the sustainable development of the Arctic and cooperation of the Arctic Council and the Arctic Economic Council
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INTRODUCTION

The Arctic region is undergoing major transformations due to climate change and changing global political, social and economic conditions and models of interaction between stakeholders. The harsh environmental conditions of the Arctic have held back economic activity in the region for a long time. While having a negative impact on the region, the climate crisis is also opening up new prospects for economic development. Understanding the driving forces that will influence the business and political landscape of the Arctic in the coming decades is crucial for politicians, business and civil society in the Arctic and around the world. It will allow humanity to find mutually beneficial approaches to realizing the economic potential of the Arctic without compromising the unique natural and social ecosystem of the Arctic.

To predict the future development of the Arctic, the Arctic 2050 Report\(^1\) presents a number of scenarios that take into account the economic, environmental and social aspects of sustainable development. When constructing scenarios, it was discovered that there are two areas of uncertainty that are most important from the point of view of where the possible socio-economic development of the Arctic region is headed — these are the quality of the institutional environment and the pace of technology and innovation development. The quality of the institutional environment includes the effectiveness of environmental, social and demographic policies and regulations, as well as the availability of financial incentives and the quality of management. The pace of technology development and innovation includes the level of digitalization and interaction, technology commercialization and the cost of doing business. Different combinations of these critical uncertainties produce very different scenarios of how the Arctic may look in 2050 and how sustainable development of the region may be impacted from the economic, social and environmental perspectives.

Given a mature institutional environment conducive to the formation of consensus among all stakeholders, as well as the rapid development of advanced Arctic technologies and innovative solutions in all economic sectors and in the social aspect, the Arctic region is well-positioned for the most favorable socio-economic and environmental development, conventionally called ‘Renaissance’. In this development scenario, business standards in the Arctic take into account the needs of the natural and social ecosystems of the Arctic and stimulate the use of the best available technologies and innovations, which in turn has a positive effect on improving the economic, social and environmental development of the Arctic region.

Since the Arctic is undergoing considerable environmental, economic and social changes, sustainable development issues are becoming critical. UN Sustainable Development Goals (hereinafter — SDGs) from 2015 represent a global consensus on the directions and ways to achieve a better and more sustainable future for all and are aimed at solving global problems. While the SDGs are a tool for achieving sustainable development on a global scale, research\(^2\) indicates that to ensure the sustainable
development of the Arctic it is necessary to contextualize the SDGs within the specific features of the Arctic.

The approach of a comprehensive assessment of the sustainability and ethical impact of investment projects and current activities of companies, based on ESG principles integrating environmental (E) and social (S) effects, as well as the quality and transparency of governance (G), is becoming increasingly widespread. Doing business in the Arctic requires not only adherence to the highest standards of ESG principles, but also their adaptation to the specific conditions of the Arctic, which is characterized by fragile natural and social ecosystems.

Interaction between the Arctic Council (hereinafter the AC) and the Arctic Economic Council (hereinafter the AEC) is a critical factor in the development of the institutional environment and the introduction of innovative solutions, including the contextualization of the SDGs and ESG requirements for the unique Arctic economic, social and environmental environment.
PURPOSE OF THE WORK

The purpose of this report is to develop proposals for improving the efficiency of interaction between the AC and the AEC, aimed at implementing the most positive scenario for sustainable socio-economic and environmental development of the Arctic region, by creating favorable conditions for attracting private investment and developing entrepreneurial projects, taking into account the need to preserve the unique Arctic ecosystem and the traditional lifestyle and management of indigenous peoples of the North, while involving all residents of the Arctic in fair economic activity. To achieve this:

1) a review of the economic development of the Arctic has been conducted;

2) the mandate, organizational structure and principles of operation of the AC and the AEC have been studied thoroughly, taking into account existing mechanisms for ensuring sustainable development;

3) proposals for ways to improve cooperation between the AC and the AEC have been formulated, taking into account the identified problems.

The process of creating the report included an open dialogue with the AC and the AEC, as well as with representatives of the indigenous peoples of the North. In particular, on September 15, 2021, a consultation was organized (Arctic Council and Arctic Economic Council informal webinar) with the stakeholders (see the list of participants in Appendix 1) to generate ideas and integrate various opinions and feedback in the framework of the report. The purpose of the consultation was to ensure openness and improve the quality of the report.

OVERVIEW OF THE ECONOMIC DEVELOPMENT OF THE ARCTIC REGION

Traditionally, the following key components are distinguished in the Arctic economy:

– mineral extraction;
– activities related to the transportation and transshipment of goods (logistics, shipping, ports);
– public sector, including central government support for the Arctic regions;
– subsistence farming, that is, the use of living resources in activities such as family-based fishing, hunting and animal husbandry, which is currently inextricably linked with the market economy;

– service sector.

Today, in addition to the areas mentioned above, the economy in the Arctic region also encompasses tourism⁴, renewable energy, and the creative and the blue economies⁵. One of the problems of analyzing the issues of socio-economic and environmental development of the Arctic is the lack of systematic and up-to-date data, since national statistical authorities do not single out the Arctic region as a separate accounting unit, in part because the administrative and territorial division of the territories of the Arctic states, as a rule, does not coincide with the geographical boundaries of the Arctic. The data for the review of the economic development of the Arctic presented in this paper are taken from the ECONOR 2020⁶ Report prepared by the working group of the Arctic Council on sustainable development.

In 2018, the Arctic regions, with 0.1% of the world's population, accounted for 0.7% of the world's gross domestic product (GDP). Traditional industries provide the inhabitants with an array of opportunities. However, the value of hunting, fishing and extraction for personal consumption is not included either in the gross regional product (GRP) or in household disposable income statistics due to a lack of data.

The Arctic region of Russia accounts for more than half of the area of the entire Arctic, and for 69% of the Arctic population. In 2018, the gross regional product of the Russian Arctic regions amounted to 73% of the entire Arctic economy. Canada has the second largest share of the Arctic surface area (29%), but a disproportionately low number of people and a 2% share in the Arctic economy.

Figure 1. The area of the Arctic regions, population and GRP of the Arctic states (in %, 2018).
In general, the growth rates of the Arctic regions (0.8%) were noticeably lower than in the non-Arctic regions of the Arctic states (2.2%). The largest growth occurred in the Faroe Islands and Iceland, with annual growth of 6.5% and 4.3%, respectively, due to higher fish prices. Canada showed the highest growth rates in the Arctic after the Faroe Islands and Iceland. Northern Canada, the Arctic regions of Norway and Finland have shown higher growth rates in the Arctic than the non-Arctic regions of these countries.

Figure 2. Real economic growth (in %) by Arctic and non-Arctic regions, by Arctic countries (2012-2018)

At the regional level, in 2018, most Arctic regions experienced economic growth compared to 2012 (see Figure 3). In the Russian Arctic, GRP per capita increased almost everywhere, due to increased production of oil and gas, and the extraction of minerals. There was an increase in construction and other types of production. A higher GRP per capita was associated with an increase in local production aimed at counteracting the impact of the US and European sanctions of 2014. In North America, the increase in GRP per capita was insignificant, and in some regions this indicator decreased, for example, in Alaska and Yukon. The growth of GRP per capita was also observed in the Arctic regions of Scandinavia and Greenland.
Figure 3. Gross regional product (in %) per capita in 2018 by purchasing power parity, relative changes (2012-2018)

GRP per capita shows the productivity of regional economies. To analyze the actual income of people living in the Arctic, it is important to consider household disposable income (HI) per capita. HI represents per capita income adjusted for taxes and transfers (see Figure 4). The review clearly shows that GRP per capita does not translate into high household income per capita in all Arctic regions.

Figure 4. Gross regional product per capita and household disposable income per capita by Arctic sub-regions (2018)
Arctic countries are striving to diversify their economies, develop human capital, stimulate local innovation and entrepreneurship, as well as maximize the use of technologies and solutions related to digitalization and the closed-loop economy. It is expected that these factors will also contribute to sustainable development and the formation of creative clusters in the urban areas. The emergence of creative spaces and the development of the creative industry indicate the emergence of a creative economy and the growth of creative capital in the region, which have a strong impact on the development of the region as a whole and the desire of its residents to fulfill their potential. In 2017, during the global crisis that affected almost all industries, creative clusters around the world grew by 14%.

The Nordic countries of Europe have achieved significant success in this area. Thus, the report "Arctic Business Analysis: Creative and Cultural Industries" emphasizes that this industry, associated with film production, tourism and trading in the cultural objects of indigenous peoples, is clearly being framed as a platform for creating value by the northern states. Moreover, creative and cultural industries serve as an instrument of economic, social and cultural growth and international cooperation.

Bio-economics combines a number of solutions for a sustainable future, both in environmental, social and economic terms. Bio-economics is already an important economic segment in the Northern Arctic, accounting for 10% of the entire economy of the Arctic countries of Europe (about 20% in some countries). The expansion of innovative use of biomass resources from land and sea represents a key opportunity to simultaneously ensure environmental sustainability and economic growth.

**Investments in the Arctic**

To identify key investment priorities in the Arctic and ways to optimize future EU financing programs for the region, the report on the consultation with the Arctic stakeholders’ forum, prepared by the EU, identified the following main priorities for investment in the Arctic:

1) expansion and improvement of digital infrastructure;
2) development of internal and external transport communications;
3) investment in education and development of skills;
4) support for the development of local businesses, including in the field of renewable energy production, bio-economics, sustainable use of natural resources and sustainable tourism;
5) support for climate change research and adaptation to climate change, including opportunities for sustainable development.

The Arctic Infrastructure Inventory is the central element of the initiative to track infrastructure projects and trends in economic development and activity in the Arctic. It lists about 8,000 projects. The initial inventory was conducted by Guggenheim Partners in 2014. In December 2019, Guggenheim Partners transferred the registry to the Wilson Center so that it would become a
publicly available resource and thus better able to serve Arctic communities. Infrastructure includes the basic structures and systems necessary for the effective and full functioning of society. This includes both public and private physical assets, such as buildings, roads, ports, water supply, sewerage, electrical networks, telecommunications equipment, mines, oil rigs, pipelines, etc. The Arctic Infrastructure Inventory classifies projects into the following categories: energy, transport, communications, and civil infrastructure. It should be noted that this registry contains many inaccuracies: it includes objects related to Russia that are not part of the Arctic. Figure 5 shows the distribution of projects by category. Transport infrastructure projects account for 78.9% of all projects, while only 0.13% of projects fall into the category of communications. The need to improve communication and investment in telecommunications is reflected in the reports of the Arctic Council, "Telecommunications Infrastructure in the Arctic; Circumpolar assessment"¹⁴, and the Arctic Economic Council, "Arctic Broadband Network"¹⁵. For a more accurate assessment of the dynamics and state of Arctic investments, it would be necessary to conduct a thorough project-by-project analysis of the Arctic Infrastructure Inventory and form an updated project registry, which would be renewed at least on a quarterly basis.

Figure 5. Distribution of Arctic infrastructure projects by type¹⁶.

![Distribution of Arctic infrastructure projects by type](image)

**Identified problems**

Statistics on socio-economic indicators are available on the ArcticStat web resource¹⁷, which is a publicly accessible and independent bank of statistical data on countries, regions and populations of the whole Arctic. At the same time, there are no unified statistics on investments, economic sectors and small and medium-sized businesses throughout the Arctic region. It is necessary to conduct a systematic collection and analysis of statistical information in the above areas.
ORGANIZATIONAL STRUCTURE OF AC AND AEC

Mandate

The Arctic Council is an intergovernmental forum whose objectives are to protect the Arctic environment and ensure sustainable development of the Arctic region. It was founded at the time of the signing of the Ottawa Declaration (in Ottawa, Canada; September 19, 1996) by the heads of government from Denmark, Iceland, Canada, Norway, Russia, USA, Finland and Sweden. The secretariat has been permanently located in Tromsø (Norway) since 2013.

The Arctic Economic Council was founded on the initiative of the intergovernmental AC. In March 2014, a corresponding document, “Facilitating the Creation of the Arctic Economic Council”, was signed in Yellowknife, Canada. The founding meeting of the Council was held in September 2014 in Iqaluit, Canada, when the beginning of full-fledged work and the formation of working groups of the Council were announced. The AEC is a membership-based independent international business organization that represents companies based and/or operating in the Arctic. The AEC stands for sustainable economic development in the region and represents the business view of sustainability. The AEC is the only regional business organization in the Arctic which includes representatives of all 8 Arctic states. The AEC is a relatively new organization, having operated for only 7 years. It is the only organization that has signed a memorandum of understanding (MOU) with the Arctic Council. The AEC Secretariat is also located in Tromsø (Norway) and currently has two full-time employees. The AEC Secretariat provides administrative and organizational support to the Council, while also undertaking communication and awareness-raising activities.

Participants

AC

The following countries are members of the AC: Canada, the Kingdom of Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden and the United States of America. The declaration also contains a provision on permanent participants of organizations representing the indigenous peoples of the Arctic in the Council. They are supported by the Indigenous Peoples' Secretariat. At the moment they include: Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, Saami Council. Permanent members are supported by the Indigenous Peoples' Secretariat.

The Declaration on the establishment of the Arctic Council of 1996 offered Observer status to non-Arctic countries, and to intergovernmental, inter-parliamentary, global, regional and non-governmental organizations that can contribute to the activities of the AC.
**AEC**

As of June 2021, the AEC has 42 permanent members from 10 different countries, including four indigenous peoples’ organizations (the Aleut International Association, the Russian Association of Indigenous Peoples of the North, the Arctic Athabaskan Council and the Inuit Circumpolar Council). In addition to business representatives from Arctic countries, AEC participants also include Hensoldt AG (Germany) and the Union of Greek Shipowners (Greece). Membership in the AEC has four categories. The voting category includes up to three business representatives from each Arctic State and up to three representatives from each permanent member organization of the AC. The list of the AEC participants includes various companies: from small and medium-sized enterprises to national and international corporations operating in the Arctic.

**Organizational form**

**AC**

The AC is a forum for interaction between the governments of the Arctic States, permanent members of the Council representing the indigenous peoples of the Arctic region, as well as a number of non-Arctic States and international organizations with observer status. The Council includes 8 Arctic states (Russia, Denmark, Iceland, Canada, Norway, the USA, Finland and Sweden) and 13 observer states (Great Britain, Germany, the Netherlands, France, Spain, Italy, Japan, China, Poland, India, Korea, Singapore and Switzerland).

The supreme body of the AC is the Council of Ministers (meeting every two years). The Chairmanship of the Arctic Council rotates every two years among the Arctic States. The Permanent Secretariat of the AC plays an important role in the Council’s activities. It was established following the Ministerial Meeting in Nuuk, Greenland, in 2011. The functions performed by the Secretariat are divided into administrative and organizational support, communication and outreach, financial and human resources management, provision of other services and performance of other functions as necessary or at the direction of the AC and its Chairman. Also included are translation of important Arctic Council documents and information materials. The AC also has an Indigenous Peoples’ Secretariat, which has become a separate structure of the Permanent Secretariat.

The AC operates through the following working groups: Working Group on Arctic Contaminants Action Program (ACAP), Working Group on Arctic Monitoring and Assessment Programme (AMAP), Working Group on Conservation of Arctic Flora and Fauna (CAFF), Working Group on Emergency Prevention, Preparedness and Response (EPPR), Working Group on Protection of the Arctic Marine Environment (PAME) and Sustainable Development Working Group (SDWG). The Arctic Council may also create Task Forces or Expert Groups to carry out specific work.
Table 1. The functionality of the AC working groups

<table>
<thead>
<tr>
<th>Name of groups</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctic Contaminants Action Program (ACAP)</td>
<td>Aimed at preventing and reducing pollution and environmental risks in the Arctic. ACAP implements projects to raise awareness and demonstrate the possibilities of reducing Arctic pollution and of cleaning up. ACAP calls on countries to strengthen policies and take measures to reduce emissions of pollutants and curb associated risks to the environment and human health, as well as socio-economic risks.</td>
</tr>
<tr>
<td>Arctic Monitoring and Assessment Programme (AMAP)</td>
<td>– Documenting trends and impacts of pollutants; – Documenting the sources and routes of pollutants; – Documenting trends in key climate indicators and their impact on the environment; – Study of the impact of pollution and climate change on the ecosystems and people of the Arctic, including the health of the indigenous peoples of the Arctic and other inhabitants; – Reporting on the state of the Arctic environment in terms of climate and pollution;</td>
</tr>
<tr>
<td>Conservation of Arctic Flora and Fauna (CAFF)</td>
<td>The work is aimed at preserving Arctic biodiversity by preparing analytical materials and presenting them to governments and Arctic residents, helping to promote methods that ensure the sustainability of Arctic living resources.</td>
</tr>
<tr>
<td>Emergency Prevention, Preparedness and Response (EPPR)</td>
<td>– Development of guidelines and methodologies for risk assessment; – Exchange of information and best practices regarding the prevention of accidents and threats associated with unintentional releases of pollutants and radionuclides, as well as natural disaster preparedness and responses to them; – Maintaining operational guidelines for two legally binding agreements concluded under the auspices of the Arctic Council: the Search and Rescue in the Arctic (SAR) and the Marine Oil Pollution Preparedness and Response in the Arctic (MOSPA).</td>
</tr>
<tr>
<td>Protection of the Arctic Marine Environment (PAME)</td>
<td>It is the center for coordinating the Arctic Council's activities related to the protection and sustainable use of the Arctic marine environment. PAME reviews marine policy measures in response to environmental changes resulting from both onshore and offshore activities. PAME develops and coordinates strategic plans, programs, assessments and guidelines, complementing existing legal mechanisms aimed at protecting the Arctic marine environment. PAME's projects are mainly focused on the following topics: – Shipping; – Marine protected areas; – Exploration and development of resources; – Ecosystem approach to management; – Pollution of the Arctic marine environment.</td>
</tr>
</tbody>
</table>
It is focused on the human aspect of the Arctic. It functions to protect and improve the environment, economy, social conditions and health of indigenous communities and residents of the Arctic. The work is focused on thematic areas, which are reflected in its Strategic Framework Document:

- Educational opportunities;
- Heritage and culture of Arctic communities;
- Human health;
- Infrastructure;
- Reducing/eliminating inequality;
- Science and research for sustainable development;
- Sustainable participation and business development;
- Sustainable energy;
- Transport communications;
- Water supply services.

AEC

The work of the AEC is led by 5 members of the Executive Committee. The chairmanship rotates every two years between the Arctic states (in a similar way to the chairmanship in the AC).

The work of the AEC is carried out through working groups consisting of experts appointed or invited by AEC members. Currently, there are 5 working groups: Maritime Transportation Working Group, Investments & Infrastructure Working Group, Responsible Resource Development Working Group, Connectivity Working Group (telecommunications) and Blue Economy Working Group. The experts on the working groups must be approved by the Heads of the Working Groups and then by the AEC Executive Committee. These groups have a two-year mandate developed independently by the members of the working group. In some cases, the AEC Executive Committee may also designate a specific topic for developing the mandate of the working group. Thus, the organizational structure and activities of the AEC are based on the interests and needs of the members.

<table>
<thead>
<tr>
<th>Name of groups</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maritime Transportation Working Group</td>
<td>Collects and exchanges available information on national and international Arctic shipping, relevant regulations, development and status of hydrographic maps</td>
</tr>
<tr>
<td>2. Investments &amp; Infrastructure Working Group</td>
<td>The aim is to strengthen the vision of the Arctic as a region with significant opportunities, which are not limited in potential. The Working Group also examines how various financing options can help the region and how the Arctic can attract capital for growth.</td>
</tr>
<tr>
<td>3. Responsible Resource Development Working Group</td>
<td>Works on identifying problems, as well as formulating proposals related to identifying favorable investment factors in the development of Arctic resources. It has prepared a report that helps</td>
</tr>
</tbody>
</table>
to assess the potential consequences of resource development; it presents best practices and a framework for doing business that is harmonious with the lives of indigenous people and communities in the Arctic.

4. Connectivity Working Group (Telecommunications)  Prepares proposals for connecting remote parts of the Arctic via communications and telecommunications, and also develops principles that should guide the implementation of telecommunications projects in the Arctic.

5. Blue Economy Working Group  Coordinates activities with other AEC working groups, such as the Maritime Transportation Working Group, on issues related to shipping. The activity of this working group is based on studying marine biotechnology and biological products, as well as the task of developing a document laying the foundations for the responsible use of the resources of the Arctic seas and oceans.

Field of activity

\[ AC \]

The AC produces comprehensive advanced assessment studies on environmental and social problems. However, it should be noted that the AC does not have the right to put into effect its recommendations, since their implementation is entirely entrusted to each Arctic state individually. Apart from that, one of the goals of establishing the Arctic Council was to promote cooperation, coordination and interaction regarding common Arctic issues among the Arctic states with the involvement of indigenous communities of the Arctic and other residents of the region. To ensure effective interaction between the Arctic countries, no decision is taken without reaching a consensus among all the member States of the AC.

\[ AEC \]

The AEC is a business forum which promotes business activity in the Arctic region and is responsible for economic development, as well as for providing circumpolar business prospects for the work of the Arctic Council. The AEC represents companies throughout the Arctic region operating in a wide variety of industries.

Results of the work

\[ AC \]

Scientific research and reports are produced by the AC and its working groups. It has become a forum for negotiations on three important legally binding agreements between the 8 Arctic States (see table 3):
- Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (2011);
- Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (2013);

Table 3. The main content of the agreements

<table>
<thead>
<tr>
<th>Document name</th>
<th>Essence of the document</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agreement on Cooperation on Aeronautical and Maritime Search</td>
<td>The agreement is aimed at strengthening cooperation and coordination in the Arctic region in the implementation of aeronautical and maritime search and rescue operations in the territory controlled by the member States of the Arctic Council. According to the agreement, the parties have the right to request permission to enter the territory of other member states of the Arctic Council for search and rescue (including refueling vehicles). In such cases, the most expeditious border crossing procedure is applied in accordance with national law and international agreements. The parties undertake to exchange information that increases the effectiveness of search and rescue operations. In addition to this, they should promote cooperation, with the emphasis on exchanging experience, observations, a system for collecting ship reports, an information system, conducting joint trainings and sharing developments.</td>
</tr>
<tr>
<td>and Rescue in the Arctic</td>
<td></td>
</tr>
<tr>
<td>2. Agreement on Cooperation on Marine Oil Pollution Preparedness</td>
<td>The document provides for additional regional measures in the field of cooperation in conducting operations to manage marine oil spills, prepare for response and analyze the outcomes. The agreement adopts the 'polluter pays' principle as a general principle. According to the document, each party is obliged to immediately notify the other 'neighbors' of spills and maintain a national system of urgent and effective response to incidents causing oil pollution. To do this, countries undertake to have a minimum amount of oil spill control equipment placed in predetermined locations, corresponding to the existing risk, as well as to having programs for its use.</td>
</tr>
<tr>
<td>and Response in the Arctic</td>
<td></td>
</tr>
<tr>
<td>3. Agreement on Enhancing International Arctic Scientific</td>
<td>The purpose of the agreement is to expand scientific cooperation and improve the efficiency and effectiveness of developing scientific knowledge about the Arctic. A key element of expanded cooperation is greater accessibility of research areas, infrastructure, equipment and data, as well as education, practical training, and the scientific cooperation.</td>
</tr>
<tr>
<td>Cooperation</td>
<td></td>
</tr>
</tbody>
</table>
AEC

In general, the AEC performs three functions:

Firstly, it promotes the best framework conditions for companies operating in the Arctic. This work is carried out both with national governments and with international organizations. The AEC works with a number of stakeholders, such as the Wilson Center, the International Maritime Organization and the European Union. The AEC affects the scope of coverage of sustainable economic development and business in the Arctic by conducting educational work, highlighting best practices and establishing a dialogue with stakeholders through participation in forums, conferences, international research projects, round tables, etc.

Secondly, the AEC promotes the interaction of businesses and the creation of public-private partnerships.

Thirdly, the AEC is engaged in informing the public about business development opportunities in the Arctic.

The AEC is working to promote the Arctic Investment Protocol, originally developed by the Global Agenda Council for the World Economic Forum. Since 2017, the Arctic Investment Protocol has been officially enshrined in the AEC. The Arctic Investment Protocol provides for the promotion of sustainable and equitable economic growth in the region. This Protocol proposes 6 basic principles that should form the basis of economic development of the region (see table 4). Review reports are issued within the framework of the AEC and its working groups (e.g., connectivity and telecommunications in the Arctic).

Table 4. The main principles in the Arctic Investment Protocol

<table>
<thead>
<tr>
<th>Name of the principle</th>
<th>Basic provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Build Resilient Societies Through Economic Development</td>
<td>This includes taking a long-term investment view, promoting long-term sustainability and economic diversification of projects and communities, creating jobs for residents, developing human capital that can serve to develop and diversify the regional economy, promoting the development of civil society through economic growth, openly discussing active partnerships with Arctic communities through investment opportunities.</td>
</tr>
<tr>
<td>2. Respect and Include Local Communities and Indigenous Peoples</td>
<td>It implies respect for the rights of indigenous and local residents and mitigation of any adverse impact on them. When implementing any investment project, it is necessary to consult with local authorities and representatives of indigenous peoples and minorities. It is also necessary to create programs that will train and involve such people in different projects.</td>
</tr>
</tbody>
</table>
3. **Pursue Measures to Protect the Environment of the Arctic**

When implementing investment projects, it is necessary to take into account the goals and objectives related to the protection and preservation of the Arctic ecosystem. In cases where it is impossible to foresee consequences for the environment, investors and the state should take measures to regulate the potential environmental impact of the project by implementing strict mitigation procedures and following a scientific and knowledge-based approach.

4. **Practice Responsible and Transparent Business Methods**

This proclaims the need to conduct projects in an honest, legal and transparent way, and to actively fight corruption.

5. **Consult and Integrate Science and Traditional Ecological Knowledge**

The principle implies the development of a common investment framework that combines exact sciences with traditional (local) environmental knowledge to ensure an adequate environmental, social and economic assessment of the impact of investment projects.

6. **Strengthen Pan-Arctic Collaboration and Sharing of Best Practices**

This principle promotes the practice of public-private partnership (PPP) in the Arctic, based on the recognition of the diversity and the distinct identity of the Arctic. It also implies the need to promote cross-border dialogue in order to adopt common standards and use best practices to maximize the environmental, social and financial benefits of development.

It should be noted that the Arctic Investment Protocol is a soft law instrument *aimed at promoting sustainable development through responsible investment and best business practices.*

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*Soft law' refers to the provisions of treaties that are formulated vaguely and do not stipulate specific rights and obligations for the state, as well as to the provisions contained in resolutions of international bodies and organizations that do not have legally binding force.

ANALYSIS OF THE WORK OF THE ARCTIC COUNCIL AND THE ARCTIC ECONOMIC COUNCIL

Features of the organizational structure of the Arctic Council

The work is coordinated via 6 working groups. The participants are mainly scientists and representatives of the Arctic states, while the business sector is not represented. Interaction between working groups is encouraged, but is often impossible due to the specifics of the tasks.

In addition to the working groups, there are task forces and expert groups that have been appointed at Ministerial Meetings since 2009. They are tasked to work on specific issues for a limited period of time, remaining active until they achieve the desired results. Experts from the working groups and representatives of the Arctic States form part of the task forces. Since 2009, 11 task forces have been established, three of which have provided a platform for negotiation on three binding agreements of the Arctic Council (see Table 5). There are currently no active task forces.

Table 5. List of task forces

<table>
<thead>
<tr>
<th></th>
<th>Task Force on Arctic Marine Cooperation (TFAMC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Task Force On Improved Connectivity In The Arctic (TFICA)</td>
</tr>
<tr>
<td>3</td>
<td>Telecommunications Infrastructure in the Arctic (TFTIA)</td>
</tr>
<tr>
<td>4</td>
<td>Scientific Cooperation Task Force (SCTF)</td>
</tr>
<tr>
<td>5</td>
<td>Task Force on Arctic Marine Oil Pollution Prevention (TFOPP)</td>
</tr>
<tr>
<td>6</td>
<td>Task Force on Black Carbon and Methane (TFBCM)</td>
</tr>
<tr>
<td>7</td>
<td>Task Force to Facilitate the Creation of a Circumpolar Business Forum (TFCBF)</td>
</tr>
<tr>
<td>8</td>
<td>Task Force for Institutional Issues (TFII)</td>
</tr>
<tr>
<td>9</td>
<td>Task Force on Search and Rescue (TFSR)</td>
</tr>
<tr>
<td>10</td>
<td>Task Force on Arctic Marine Oil Pollution Preparedness and Response</td>
</tr>
<tr>
<td>11</td>
<td>Task Force on Short-Lived Climate Forcers (SLCF)</td>
</tr>
</tbody>
</table>

Features of the organizational structure of the Arctic Economic Council

Since its establishment in 2015, the AEC has attracted 42 members in 4 categories. Due to the fact that the AEC is a business forum, there are no representatives of the authorities and the scientific community in its structure (although some representatives of the scientific community are invited by experts to the working groups (WG)).

Table 6. Types of AEC membership

<table>
<thead>
<tr>
<th>Type of membership</th>
<th>Description</th>
<th>Annual membership fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctic Partner</td>
<td>For all types of business from both the Arctic and the Subarctic region</td>
<td>10,000 US dollars</td>
</tr>
<tr>
<td>Legacy member</td>
<td>Up to three business representatives from each Arctic</td>
<td>10,000 US dollars</td>
</tr>
</tbody>
</table>
State and up to three representatives from each permanent member organization of the AC. Legacy members are appointed by national AEC organizations. This is a voting membership in the AEC.

<table>
<thead>
<tr>
<th>Permafrost partner</th>
<th>The AEC Permafrost Partner category is intended for micro-enterprises that are not subsidiaries, but have headquarters in the Arctic state and no more than 15 employees.</th>
<th>2,500 US dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aleut International Association, Arctic Athabaskan Council, RAIPON and Inuit Circumpolar Council</td>
<td>There is a special category for permanent participants: 4 indigenous organizations</td>
<td>1,000 US dollars</td>
</tr>
</tbody>
</table>

At the moment, 5 out of 42 participants in the AEC are permafrost partners. Experts of working groups from small and medium-sized enterprises (hereinafter referred to as SMEs) can be invited to work in the WG without the need to pay for the participation of their companies in the AEC.

**Identified difficulties**

Currently, there is no data on the extent of application of the Arctic Investment Protocol, and there are no practical recommendations for the implementation of the protocol. The AEC Investment and Infrastructure Working Group collects information and concrete examples of best practices to ensure sustainable investments in the Arctic. In the future, these examples will be included in the annex to the Arctic Investment Protocol. In April 2021, the Conference of Parliamentarians of the Arctic Region* adopted a conference statement, in which one of the focuses is sustainable economic development. That includes increasing the availability of digital infrastructure in the Arctic, strengthening cooperation with the Arctic Economic Council and ensuring the implementation of the Arctic Investment Protocol. In addition, in the summary of the outcomes of public consultations on the EU Arctic policy, it was proposed that the EU should include sustainability criteria in Arctic investments and promote the implementation of the Arctic Investment Protocol. It should be noted that the period of practical application of the Arctic Investment Protocol largely coincided with the active phase of the COVID-19 coronavirus pandemic, and therefore, despite the nominally long period of the Arctic Investment Protocol, in fact, the accumulated practice remains insufficient to develop recommendations based on the experience of practical application of the provisions of the Protocol.

*A parliamentary organization consisting of parliamentary delegations from countries located in the Arctic region (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, the United States of America), as well as the European Parliament. The Arctic Council and the Northern Council have the status of observers.
At the same time, there is ongoing work on the preparation of the report on Sustainable Investments in the Arctic (prepared by Polar Research and Policy Initiative (PRPI)). This work will consist of an introductory chapter on the business environment in the Arctic, followed by investment examples from across the region covering various sectors. The report is both quantitative and qualitative and consists of desk research, as well as interviews. The results of the work should be useful to both government representatives and business representatives in the Arctic countries.

In addition, it is important to emphasize that the AEC takes into account the pan-Arctic agenda, which reflects the composition of the council. Most of the participants represent large companies doing business both in the Arctic region as a whole and around the world. It can be argued that small and medium-sized businesses represent the economic interests of the indigenous peoples of the North and other forms of entrepreneurship, as well as private business and urban services. The absence of small businesses in the AEC is also due to the high membership fee and the lack of information about the benefits of participation. At the same time, the participation of representatives of small and medium-sized enterprises in the work of the AEC is necessary, since SMEs are the most important factor in shaping the strategy of innovative development of the Arctic regions, including technological entrepreneurship, creative industries and services. While remaining an important participant in the Arctic socio-economic and environmental discourse, global business, especially those companies involved in the development of the raw materials, fuel and energy resources of the Arctic, is not only unable to solve local problems of the Arctic alone but also should not try to do so. Expanding the circle of participants in Arctic socio-economic and environmental discourse through the widest possible involvement of small and medium-sized businesses is the key to the sustainable development of the Arctic.

**Cooperation between AC and AEC**

The analysis of the work of the AC and the AEC demonstrates the institutional maturity of Arctic cooperation. The AEC and the AC have their main offices (secretariats) in Tromsø (Norway), which allows for close dialogue and coordination. The strategic partnership between the Councils was formalized under the chairmanship of Iceland and resulted in the signing of a Memorandum of Understanding in Rovaniemi in May 2019. Shortly thereafter, the AEC and the AC held the first joint meeting of the two Councils (October 2019), where senior officials of the AC, permanent participants, AEC members and representatives of working groups discussed common problems and challenges.

More recently, the AEC and the AC collaborated within the AC Task Force to improve connectivity. The AC has a coordinator who monitors the work of the AEC working group on connectivity and telecommunications.
The issues of economic development within the AC are the focus of the Sustainable Development Group, which highlights the development trends of the Arctic region, including through the publication of the ECONOR report. The AEC, in turn, deals with the practical issues of doing business in the Arctic.

The Strategic Plan of the Arctic Council for 2021-2030 provides for the promotion of cooperation in the field of sustainable and diverse economic development, taking into account the expansion of cooperation in the field of development and the promotion of favorable conditions for sustainable investment and economic activity in the Arctic.
SUSTAINABLE DEVELOPMENT OF AC AND AEC AND ESG FACTORS.

BUSINESS DEVELOPMENT IN THE ARCTIC REGION

The AEC and the AC should jointly consider a set of measures aimed at realizing the potential of the Arctic territories, as well as creating opportunities for residents of the region to take an active part in the economic life of their place of residence and improve living standards.

Special attention should be paid to integrated economic development to ensure the functioning of the key institutions of economic development and the creation of a favorable regulatory environment in the region. Another central aspect is ensuring an environmental balance in the Arctic region through finding a balance between environmental regulation and the needs of economic growth and development. Other important areas include supporting the development of Arctic tourism, through promoting the cultural traditions and heritage of the indigenous peoples of the North, as well as developing telecommunications covering all spheres of life of the Arctic peoples. It is necessary to pay attention to the development of Arctic infrastructure, since the modernization of existing facilities and the creation of modern infrastructure is one of the main factors in ensuring high rates of economic growth, increasing the well-being of residents and maintaining the optimal state of the environment.

In order to define a scenario for the sustainable development of the Arctic, the AC and the AEC should actively promote the adaptation and application of ESG principles in the Arctic, up to the creation of a localized version of the Arctic ESG principles (AESG). Compliance by all participants in the socio-economic processes in the Arctic with the ESG principles contributes to the development of the global reputation of the Arctic as an emerging market, and not as a global nature reserve or theme park. The ethical acceptability of the economic development of the Arctic among the wider global community is one of the key factors ensuring the attractiveness of investment in the region. The image of a socially and environmentally stable region with a dynamically developing economy is the most important prerequisite for attracting new sources of financing for environmental and social projects (green and social bonds), increasing the attractiveness of the region for foreign direct investment, etc.

This aspect is particularly important for the Arctic, which is characterized by a fragile ecosystem and significant difficulties in organizing the social sphere. The acuteness of these issues is also becoming more evident, given the expected growth of economic activity in the Arctic zone. Therefore, it is advisable for AC and AEC work on detailing ESG principles in relation to the Arctic, and their adaptation to regional specifics, leading to the creation of a localized version of the Arctic ESG principles (AESG). There are several business areas in the Arctic (mining, SMEs, waste collection and processing) that require a more detailed examination and adaptation of ESG principles as a matter of priority.
During the consultations with the stakeholders, 6 specific areas were identified as priorities to enhance the sustainable development of the AC and AEC, taking into account ESG factors:

1) Tourism development;
2) Creative economy development;
3) Support for small and medium-sized businesses in the Arctic;
4) Mineral extraction;
5) Development of Industry 4.0 in the Arctic;
6) Blue economy in the Arctic.

**Tourism development**

The unique historical, architectural, cultural and natural heritage of the Arctic opens up great opportunities for attracting tourists. Ensuring safe travel in the extreme conditions of the Far North is capital-intensive and requires specific knowledge and competence.

Until 2019, there was a positive trend in the growth of tourist traffic in all Arctic countries. New infrastructure facilities were built, jobs were created, and a fully-fledged tourist and recreational complex was formed. The coronavirus pandemic dealt a significant blow to the tourism industry in the Arctic. It is expected that hospitality and tourism will take several years to return to the level of 2019.

Special attention in the work of the AEC should be paid to the study of tourism development in the Svalbard archipelago and, above all, the development of tourist infrastructure on the archipelago. It is also advisable for the AEC to work out mechanisms to support tourist operators, as well as operators organizing children's scout camps, which is one of the fastest growing tourist segments. (These operators are specialized international companies bringing together professionals in the field of pedagogy and child development, as well as specialists and trainers in the field of survival in extreme conditions.)

There are certain factors that deter tourists from visiting the Far North: limited transport accessibility, seasonality of tourist offers, insufficient level of tourist infrastructure development and the relatively high cost of tour packages. The development of Arctic tourism is quite promising, but it requires intensive international cooperation.

To date, Arctic tourism has faced a number of challenges, and solutions to them will determine the further development of the industry:

a) assessment of environmental risks of tourism development;

Increased tourist traffic increases the load on the fragile ecological systems of the Arctic, especially those located in the tundra zone.
b) use of the historical and cultural environment in the tourism industry;

The integration of the tangible and intangible historical and cultural heritage of the Arctic into tourism activities is associated with a number of potential threats. In addition to the dangers associated with increased traffic and infrastructure development, similar in their genesis to the environmental problems created by tourism (the risk of damaging valuable cultural landscapes, damage to or destruction of historical and archaeological sites), the interaction of the historical and cultural environment and the tourism industry faces a complex of specific challenges.

c) the problem of accessibility of Arctic tourist destinations;

d) support for the tourism industry during the coronavirus pandemic.

Despite the difficulties mentioned above, tourism is one of the few available ways to diversify the economy of these territories, as well as to develop global awareness of the Arctic as an emerging market.

**Creative economy development**

The concept of the "creative economy" includes a number of activities related to the creation and circulation of the results of intellectual and creative activity, in particular, all areas of art, design, crafts, multimedia, fashion, software creation, etc. The key participant of the creative economy is the so-called 'creative class': these are professionals whose economic function is to generate new ideas, new technologies and creative content. This class includes scientists and teachers, engineers, designers, software developers, artists, writers, journalists, etc. The creative economy significantly affects the territorial development and the desire of residents to realize their own potential. In 2017, during the global crisis, when almost all sectors of the economy were in recession, creative clusters in the world showed a record growth rate of 14%. The UN has declared 2021 the Year of the Creative Economy.

Within the framework of the AEC, it is important to organize creative spaces in the Arctic involving the establishment of interdisciplinary research, creative residences for artists working in various genres and techniques, architects, sculptors, writers, journalists, psychologists, anthropologists, sociologists and others. These would be spaces for joint creative work where, on the one hand, people are largely isolated from the outside world, and, on the other, they closely and almost constantly interact with each other. This would ensure the intensity of creative interaction; being in the wild and living autonomously creates special conditions for the creative process, combining a favorable creative atmosphere and a sharper perception of reality due to going far beyond the usual. With thoughtful curatorial efforts related to both the choice of residence themes and the selection of artists, this will not
only create meaningful artistic statements, but will also become a point of attraction for an international audience, becoming an object of cultural and educational tourism.

**Support for small and medium-sized businesses in the Arctic**

Microenterprises, small and medium-sized enterprises* represent the backbone of the economy. Within the European Union, micro, small and medium-sized enterprises account for 52.8% of all gross value added and for 64.9% of all employment. Microenterprises account for over 90% of all employment from all enterprises in the Scandinavian Arctic and for 82% of employment from all enterprises in the Arctic zone of the Russian Federation; they are the main source of job creation and innovation. Doing business in the Arctic is often associated with remoteness from customers, the small size of the population and climate conditions that result in higher operating costs compared to other regions.

Arctic entrepreneurship is developing under a number of restrictions. The main constraints on business development in the Arctic region are:

- underdeveloped infrastructure;
- material and technical support for small businesses is carried out in an untimely manner and insufficient volume;
- the complex process of obtaining loan finance;
- absence of appropriate tax benefits.

In the Arctic Investment Protocol, it is necessary to dedicate a separate section to possible measures to support micro and small and medium-sized enterprises in the Arctic region and provide for possible support measures such as:

- mechanisms for involving SMEs in large projects implemented in the Arctic region;
- mechanisms to expand access of SMEs in the Arctic to concessional financing;
- mechanisms to stimulate public procurement from local entrepreneurs.

The AEC also needs to review the creation of territorial and intersectoral clusters. As support, a concept for the development of cluster policy should be devised and approved. This would outline the motives, goals, tasks and areas of cluster development policy. In order to ensure the implementation

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* Microenterprises — fewer than 10 people employed, annual turnover and/or annual balance not exceeding 2 million euros; small enterprises — fewer than 50 employees and annual turnover and/or annual balance does not exceed 10 million euros, except for enterprises that qualify as microenterprises; medium — up to 250 employees and annual turnover does not exceed 50 million euros and/or annual balance does not exceed 43 million euros, except for enterprises that qualify as microenterprises and small enterprises (Eurostat).
of the cluster policy concept, an action plan should be developed for the near future to implement its provisions.

In order to support the development of cluster initiatives, the cluster policy concept should provide for the possibility of using economic policy tools and measures. In this regard, it is possible to identify key areas of application:

*Development of innovative potential,* providing for financial support for R&D, the creation of science and technology parks, technology transfer centers, innovation databases, assistance in the commercialization of R&D.

*Development of human capital,* which provides for measures to improve the quality of education in the cluster profile, professional development programs, stimulating the influx of professionals from other regions and promoting international professional, academic and creative mobility.

*Supporting business initiatives,* providing for the creation of business incubators for the cluster profile, venture funds, facilitating access to credit resources, leasing equipment on preferential terms, certain tax benefits, granting benefits for the use of state property, simplification of company registration procedures, reduction of administrative barriers.

*Supporting the expansion of cluster products in international markets,* including export support programs, certification of products according to international standards, assistance in conducting marketing research, support for participation in relevant exhibitions and fairs (and their organization).

*Development of cluster infrastructure,* which provides for financing projects for the development of transport and engineering infrastructure, communications and telecommunications.

**Mineral extraction**

Despite the gradual increase in the share of renewable energy sources in the global energy mix, oil and gas are still the main sources of power.

To date, the number of oil and gas fields discovered north of the Arctic Circle is in the hundreds. However, the hydrocarbon potential of most of the Arctic, especially its marine spaces, remains unexplored. Geological exploration in the northern latitudes is more technically challenging than in any other environment. In addition, the shift away from the dominance of hydrocarbons has increased demand for resources to support the 'green shift', which is expected to lead to a significant reduction in greenhouse gas emissions. This requires various raw materials, such as rare earth elements (REE), which play a central role in creating renewable and sustainable alternatives. The Arctic is attractive to global investors because of the development of REE.
Most projects for the development of resource deposits in the Arctic require significantly more time to carry out "pre-production" research. Moreover, these projects often involve significant infrastructure investment. In this regard, oil and gas projects and mining projects in the Far North are considered strategic and long-term.

The principle of sustainable development is of great importance in the adopted norms and documents aimed at the development of mineral extraction. Thus, when issuing permits for the operation of Arctic offshore fields, the governments of the Nordic countries should take into account the commitment of mining companies to sustainable development and ESG principles. In particular:

- Focus on preserving the biological diversity of the territory in which they will carry out their activities;
- An obligation not to transfer, directly or indirectly, damage or danger from one area of the environment to another, or transform one type of pollution into another;
- Promotion of the most advanced technologies available to create the best environmental conditions;
- An obligation to cooperate on a regional basis in order to protect and preserve the marine environment, taking into account regional characteristics and global climate change;
- Regulation of the pace of mining in accordance with the rational conservation and use of resources;
- Commitment to the principles of sustainable development that meets the needs of the present without compromising its ability to meet the needs of the future, that is, not to exploit nature for maximum benefit of the current generation, without measures aimed at restoring and preserving the natural environment;
- Integration of the environmental and social problems of the Arctic population into all development processes; broad public participation in the decision-making process when taking the most important decisions concerning the life of people in the North;
- Resolution of disputes by regulatory and political structures that ensure the participation of indigenous peoples in addressing controversial issues;
- Encouragement of industry to integrate the industrial, cultural and environmental aspects of projects in order to protect the interests of the local population at the stages of planning, design, construction and operation of mineral deposits;
- Improvement of intercultural communication formats to ensure the full and meaningful participation of indigenous people, including procedures for using local knowledge.
Development of Industry 4.0 in the Arctic

The current speed of technological development and external challenges requires constant structural improvement of economic management and the use of world-class technological solutions. Industry 4.0 is used as a synonym for the Fourth Industrial Revolution and represents a new stage in the organization and control of the value chain. Industry 4.0 is a concept focused on the creation of smart products, procedures and processes, as well as smart enterprises.\textsuperscript{36} The essence of Industry 4.0 is the accelerated integration of cyber-physical systems into factory processes, which results in a significant part of production operating without human participation. Industry 4.0 is associated with such concepts as the "industrial internet of things" and "digital enterprise".

Advanced production and digital information and communication technologies, based on the innovations of Industry 4.0, will completely change the way the Arctic space is used, as well as the course of development of Arctic infrastructure complexes and systems. The strategic goal of using advanced industrial, digital information and communication technologies and mechanisms in the Arctic is to ensure a high quality of life for the population in accordance with the opportunities that emerge due to scientific, technical and organizational progress.

The remoteness of Arctic territories and long distances involved limit the access of the population to government agencies and businesses to modern communication channels. A necessary condition for the introduction of Industry 4.0 technologies is access to the main communication lines of the Arctic countries. In this regard, the creation of channels of fiber-optic communication lines (hereinafter – FOCL), satellite communications and wireless communications can ensure the reliability of the storage, speed and transmission of large amounts of data. Clearly, depending on how each region is positioned in the national and international system of division of labor, it will have its own characteristic industries.

It should be noted that in most Arctic countries, the development of digital technologies is associated with industrial projects, transport solutions and solving tasks related to the development of human capital in the field of education, modern healthcare and the preservation of culture among population.

When it comes to goals, many Arctic countries highlight the use of smart city/settlement technologies\textsuperscript{37} and the optimization of transport flows, which the safety of settlements and the development of industry entirely depend on.

Table 7: Possible areas of Industry 4.0 development in the Arctic

<table>
<thead>
<tr>
<th>Area</th>
<th>Industry 4.0 Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial projects</td>
<td>Digital twins of the production</td>
</tr>
<tr>
<td></td>
<td>Robotization and unmanned technology</td>
</tr>
</tbody>
</table>
Unmanned trucks
Resource efficiency and carbon footprint management
Internet of Things (IoT)
Artificial Intelligence (AI) technologies

Life safety
Environmental monitoring (CO2, BC, NOx)
Meteorological observation and forecasting of weather and ice conditions
Launching meteorological probes / Studying the ionosphere

Reliable and clean energy
Intelligent energy supply systems and hybrid systems / Energy and Smart Grid

Logistics and connectivity
Food and goods inventory management / Severny Zavoz (Northern Delivery)
Unmanned vehicles (ships, land and air transport)
Satellite communications and 5G
Development of fiber-optic communication line
Forecasting routes using artificial intelligence technologies

Quality of life
Medicine
Education
Preservation of cultural heritage
Artificial intelligence in the preservation of the languages of the peoples of the North
Wireless communication technologies
Population mobility

The main risks facing the Arctic can be controlled and managed. Industry 4.0 technologies make it possible to shorten the design time, take into account operating modes and conditions, and create energy-efficient and environmentally friendly technologies. The efficiency of processes can be significantly increased through the use of artificial intelligence algorithms.

The high volatility of market prices for raw materials and energy carriers, the increasing transformation of energy markets and the sensitivity of the world economy to the consequences of the COVID-19 pandemic imply there is a need for a high-quality risk management.

We consider it expedient for the AC and the AEC to jointly explore possible ways of addressing emerging risks through Industry 4.0 solutions.

Table 8: Possible major risks of the Arctic development and possible solutions

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate risks: impact on engineering facilities, buildings and structures, as well as changes in the landscape and the ocean</td>
<td>Way to reduce: climate forecasting systems, Big Data, distributed energy, RES</td>
</tr>
<tr>
<td>Market risks: decreasing demand for individual products increasing competition</td>
<td>Way to reduce: digital twin, artificial intelligence, management of raw materials and energy consumption, fiber optic communication line, 5G, non-primary use of oil and gas, production of new types of energy carriers</td>
</tr>
</tbody>
</table>
Social risks:
growing social tension
disproportion in the standard of living of the local population and new residents
changing the usual way of life during the implementation of industrial projects

Way to reduce: elimination of digital inequality, development of communication systems, digital education and medicine, smart settlements, environmental safety, social programs and training of the local population to work in new industries

Macroeconomic risks:
changes in the growth rate of the world economy

Way to reduce: artificial intelligence, development of the local economy and the use of local resources to meet local needs, distributed energy

Regulatory risks:
stricter requirements for the quality of raw materials and the carbon footprint during their production
lack of standards in the field of unmanned vehicles, Big Data

Way to reduce: new and clean energy sources, digital twins of production, accounting and control of the state of the environment, transfer of the best regulatory practices

Technological risks:
equipment or processing lines failure

Way to reduce: Internet of things, robotization, digital twins, artificial intelligence, FOCL, 5G, building safe routes, distributed energy, test sites

Blue economy in the Arctic

The blue (or ocean) economy is based on marine biotechnologies. It will remain the main factor in achieving sustainable development in the Arctic. The assets of the world ocean are estimated at $ 25 trillion; the extent to which the world ocean has been studied is 2-5%. The blue economy, including logistics, shipbuilding, bioresources, minerals, tourism and other areas of economic activity, will reach $3 trillion by 2030, while the oceans and seas already provide food for 10-12% of the world's population and absorb about 30% of anthropogenic carbon dioxide emissions. The United Nations has announced the Decade of Ocean Sciences for Sustainable Development (2021-2030) with the aim of mobilizing the scientific community, responsible politicians, business and civil society to implement a program of joint research and technological innovation.

The Arctic has a special potential for socio-economic development based on the principles and approaches of the blue economy and could well become one of the most significant international centers of competence in this area.

Regulation of the economic development of the ocean is an extremely sensitive area. The provisions of the United Nations Convention on the Law of the Sea (UNCLOS) play a vital role in providing States with mechanisms and procedures for more extensive management of marine resources. Nevertheless, unilateral management by each of the coastal states remains the predominant way of managing marine activities in the Arctic. Thus, it is necessary to define legal and policy frameworks on the national and local levels.

At the moment, there are no guidelines for the development of the blue economy in the Arctic, but relevant work is already underway. One of the AC projects is called Blue Bioeconomy in the Arctic
Region\textsuperscript{38}, it is implemented by the Sustainable Development Working Group (SDWG). The Blue Bioeconomy in the Arctic Region project by SDWG will identify key opportunities for strengthening and further developing the blue bioeconomy in the Arctic, with an emphasis on ensuring a balance between economic growth, social integration and environmental protection. The project will unite success stories and describe best practices, as well as identify obstacles that may hinder progress. Within the framework of the AEC, the Blue Economy Working Group (BEWG) aims to create a pan-Arctic alliance of oceanic clusters to use knowledge, experience and financing tools across the region to accelerate product development and economic growth in this sector.

Priority actions:\textsuperscript{39}

- Implement mechanisms to increase the reinvestment of tourism revenues in local and indigenous communities in order to build capacity and skills to increase local employment in tourism, diversify economic opportunities and increase investment in the restoration and protection of coastal and marine areas;
- Develop national goals and strategies in support of decarbonization of ships as soon as possible;
- Stimulate the development and implementation of technologies for the production and storage of new fuels without harmful emissions;
- Encourage sustainable, low-carbon ports supporting the transition to a decarbonized maritime transport and merchant fleet, through renewable energy and carbon-free fuel supply chains;
- Expand the exchange of results of scientific research and development in the field of marine genetic resources in national waters on the basis of fairness and equality;
- Initiate an international research program to deepen understanding of the environmental impacts and risks associated with the extraction of minerals on the ocean floor (especially in terms of deep-sea ecosystems);
- Strengthen measures to prevent pollution as a result of mining and development of offshore oil and gas fields, including spills of hazardous and harmful substances;
- Collaborate with all relevant partners, including local communities, indigenous peoples and stakeholders, through relevant global and regional organizations, to promote the sustainable management of all marine and coastal ecosystems.

AEC partnerships and business relations development

In the long term, the work of the AEC should ensure the strengthening of economic ties between both the polar and non-Arctic powers, intensify public-private partnership in the Arctic, and become a permanent and solid platform for international economic cooperation. At the same time, the economic orientation of the Council's activities will affect the international political development of the Far
North. In the future, the organization can become one of the major mechanisms that can influence the business and political elite in the Arctic.

The prospects for the development of the AEC may also be associated with the establishment of a special international development institute: a strategic project support fund. This would make it possible to strengthen the influence of the AEC on the business communities of the northern states.

The main prerequisites for the creation of the fund are:

- absence of an international development institute focused on sustainable projects in the Arctic based on ESG;
- lack of funding for projects aimed at transferring and preserving the knowledge of indigenous and numerically challenged peoples of the North and the Arctic;
- lack of funding for projects aimed at preserving permafrost, places of traditional habitation for the indigenous and numerically challenged peoples of the North and the Arctic;
- creation of a tool for financing sustainable projects can be implemented in the format of public-private partnership, with the taxonomy based on the principles of ESG (existing tools are not sufficient because the Arctic Investment Protocol is focused on economic projects, while Project Support Instrument is focused on environmental ones);
- creation of the fund will make it possible to finance projects covering sustainable development in general: including economic, environmental, and social aspects;
- non-Arctic countries and observers of the AC and AEC with Arctic strategies and private investment funds in place can be involved in the creation of the fund;
- the backbone of the mechanism is private investment and climate funds: no investment will be required from the AC and AEC member states and permanent observers.

One of the options for creating such a fund (international development institute) may involve the inclusion of environmental organizations and associations of indigenous peoples in the process of allocating funds. This would make it possible to financially support only those projects that use green technologies and do not violate the traditional way of life of the peoples of the Far North. The AEC can act as a supervisory authority that will monitor the financing of such projects. When creating this fund, it will be necessary to consider the experience of similar organizations in other regions (the European Bank for Reconstruction and Development, the Eurasian Development Bank, the Islamic Development Bank, the Asian Development Bank, the BRICS Bank and other international financial development institutions).

For the development of the Arctic Economic Council as an important element of the system of international relations in the Arctic, it will be important to establish close relationships with other economic associations of entrepreneurs from the northern states.
A number of international economic organizations and forums deal with the economic development of the Arctic and the Arctic Ocean. They include the Barents Euro-Arctic Council within which the Working Group on Economic Cooperation and the Regional Working Group on Investments and Economic Cooperation operate. The purpose of these associations is to make economic activity in the Far North socially responsible and to ensure the prudent development of the Arctic.

The goals of the Nordic Council of Ministers also include supporting the economic development of the Arctic. However, Russia is not a member of the Council.

The Nordic Investment Bank, created within the framework of these organizations, is focused exclusively on supporting projects in Scandinavia and the Baltic states.

There are also economic committees and organizations that are financially and organizationally supported by the government bodies of individual polar countries. For instance, the Canadian Council for Aboriginal Business is actively developing a program to stimulate the participation of indigenous peoples in economic development (Aboriginal economic development corporations)\textsuperscript{40}. The program provides expert legal and financial support for promising international initiatives initiated by the indigenous people of the north of Canada, or for economic projects that significantly affect their way of life.

The AC and the AEC have experience of cooperation in telecommunications in the Arctic, as well as on blue economy issues. The AEC, in close cooperation with the Arctic Council, has created a working network of ocean clusters and marine economic development resources to support businesses in the Arctic\textsuperscript{41}. It is necessary to expand cooperation between the AC and the AEC on the 6 identified priorities, using successful models and mechanisms of cooperation for the development of telecommunications and the blue economy.

For the AEC to become a key economic institution in the Arctic, building relations with reputable international economic organizations will be an important step. To ensure this, representatives of these associations can become members of the Council with limited powers, or be given the status of observers.
PROPOSALS TO IMPROVE THE EFFICIENCY OF AC AND AEC, AND TO EXPAND COOPERATION BETWEEN AC AND AEC, INCLUDING THE INTERESTS OF SMALL AND MEDIUM-SIZED BUSINESSES

Improving the business environment

1. The AEC needs to prepare the annual report with an assessment of the current state and long-term prospects of economic activity in the Arctic (Arctic Business Outlook);
2. The AEC needs to prepare proposals on the main areas, mechanisms and formats of international public-private partnership, taking into account the specific features of the Arctic;
3. The AEC needs to work hard on the issue of creating northern interstate clusters with a special regulatory regime (free economic zones), including the border regions of several Arctic states, aimed at creating favorable conditions for the development of promising/innovative sectors of the Arctic economy by combining international competencies and resources;
4. The AEC needs to study the possibilities for establishing a special fund to support strategic projects (International development institute) focused on financing local business and infrastructure development in the Far North based on ESG principles, adapted to the Arctic context.

Ensuring sustainable development

1. Prepare proposals to expand the membership of the AEC in order to attract expert organizations to define ESG standards for doing business under favorable conditions in the Arctic;
2. Prepare proposals to improve the status of the Arctic Investment Protocol, including from the point of view of ESG and SDGs, as well as make methodological recommendations for the implementation of the protocol;
3. Ensure the non-discriminatory access of indigenous peoples of the North to participation in the economic development of the Arctic; create conditions for the free entrepreneurial self-realization of indigenous peoples of the North; develop a program to support the economic activities of indigenous peoples of the Arctic region.

Implementation of sectoral action plans

1. Prepare an action plan to support and develop the mining industry in the Arctic region;
2. Prepare an action plan to support and develop the tourism industry (including cruise tourism) in the Arctic region;
3. Prepare an action plan to support small and medium-sized businesses in the Arctic region.
Strengthening institutional cooperation

1. Prepare proposals for the interaction of the AEC with leading international universities, business schools, research centers, as well as with regional chambers of commerce and trade;
2. Prepare proposals for cooperation with commercial companies of countries outside the Arctic region;
3. Examine the possibility of establishing relations with international economic organizations (UN Economic Commission for Europe, UN Economic and Social Council (ECOSOC), Organization for Economic Cooperation and Development (OECD);
4. Prepare proposals on possible mechanisms for attracting small and medium-sized businesses to the AEC;
5. Consider, within the framework of the work of the AC and AEC, the proposals presented in this report in the following areas: tourism development, creative economy development, support for small and medium-sized businesses in the Arctic, mineral extraction, development of Industry 4.0, and the blue economy in the Arctic.
# Appendix 1. List of participants of the Arctic Council and Arctic Economic Council informal webinar (September 15, 2021)

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Organization</th>
<th>Title</th>
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<tr>
<td>Nina</td>
<td>Ågren</td>
<td>ACS</td>
<td>EPPR Executive Secretary</td>
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<tr>
<td>Evgeny</td>
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<td>Arctic Economic Council</td>
<td>Chair</td>
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<td>Petur</td>
<td>Asgeirsson</td>
<td>Ministry for Foreign Affairs of Iceland</td>
<td>Ambassador, Senior Arctic Official</td>
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<tr>
<td>Kristina</td>
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<td>Stein Gunnar</td>
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<td>AEC Vice-Chair</td>
<td>Troms Kraft, Executive Vice President Public Relations</td>
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<tr>
<td>Jessica</td>
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<td>PR Officer</td>
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<tr>
<td>Louis</td>
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<td>John</td>
<td>Crump</td>
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<td>Hjalmar</td>
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<td>Benjamin</td>
<td>DeAngelo</td>
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<td>Degteva</td>
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<td>Sergey</td>
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<td>Grigory</td>
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<td>Devlin</td>
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<td>Hodayah</td>
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<td>US EPA</td>
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<td>Mads</td>
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<td>Cecilia</td>
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<td>Frode</td>
<td>Nord University Business School</td>
<td>DSc and Professor in Marketing</td>
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<td>52</td>
<td>Alexandra</td>
<td>University of Oulu</td>
<td>Postdoctoral Fellow, PhD</td>
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Bibliography


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