



THINK ARCTIC

RESPONSIBLE
GOVERNANCE
FOR A SUSTAINABLE
ARCTIC



2021-2023

ARCTIC COUNCIL
RUSSIA'S CHAIRMANSHIP

THINK ARCTIC – THINK GLOBAL

2021-2023

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Acronyms and Abbreviations

- AC – Arctic Council
- ACAP – Arctic Contaminants Action Program
- AEPS – Arctic Environmental Protection Strategy
- AMAP – The Arctic Monitoring and Assessment Programme
- APG – associated petroleum gas
- Arcticfire – The Arctic Wildland Fire Ecology Mapping and Monitoring Project
- ArcToMal – Arctic tourism in the Barents Sea – awareness and participation for marine litter prevention
- ARHC – Arctic Regional Hydrography Commission
- ASFR – Arctic Security Forces Roundtable
- AZRF – Arctic Zone of the Russian Federation
- BAT – best available techniques
- BEAC – Barents Euro-Arctic Council
- BFM – Barents Financial Mechanism
- BRICS STI FP – BRICS Science, Technology and Innovation Framework Programme
- CAFF – Conservation of arctic flora and fauna
- CAP – Circumpolar Action Plan
- CASS – the Chinese Academy of Social Sciences
- CBC – Cross-border Cooperation program
- CE – circular economy
- CIMO – The Centre for International Mobility
- DIMARC – Detecting, identifying and mapping plastic in the Arctic using robotics and digital solutions
- EEZ – exclusive economic zone
- EIA – environmental impact assessment
- EPPR – Emergency Prevention, Preparedness and Response
- IAM – integrated assessment model
- IMO – International Maritime Organization
- IPCC – Intergovernmental Panel on Climate Change
- LNG – liquefied natural gas
- MALINOR – Mapping marine litter in the Norwegian and Russian Arctic Seas
- MARPOL – The International Convention for the Prevention of Pollution from Ships
- MNEPR – Framework Agreement and Protocol on a Multilateral Nuclear Environmental Programme in the Russian Federation



- MOSPA – Agreement on Cooperation on Marine Oil Pollution Preparedness and Response
- NAFO – Northwest Atlantic Fisheries Organization
- NDBC – the Northern Dimension Business Council
- NSR – Northern Sea Route
- OECM – Other effective area-based conservation measures
- PAME – Protection of the Arctic Marine Environment
- RCP – Representative Concentration Pathway up to 2100 (adopted by the IPCC)
- Polar Code – International Code for Ships Operating in Polar Waters
- POPs – persistent organic pollutants
- SDGs – Sustainable Development Goals
- SDWG – The Sustainable Development Working Group
- SNF – spent nuclear fuel
- SOLAS – International Convention for the Safety of Life at Sea
- SSP – Shared Socioeconomic Pathways up to 2100 (adopted by IPCC)
- UArctic – University of the Arctic
- UNCLOS – United Nations Convention on the Law of the Sea
- VSEGEI – Russian Geological Research Institute

1. Introduction

Global climate change, the freeing of the Arctic from ice, increased environmental risks, and transformational processes in the system of international relations have increased the role of the region in the global agenda. Traditionally, the Arctic was considered a territory devoid of international conflicts, but today it has become an area of conflict of interest between Russia and Western countries. For this reason, there is a critical need to build a constructive dialogue, maintain good neighborly conditions between the “Arctic Eight” states and close cooperation between the Arctic and non-Arctic countries to ensure sustainable development of the Arctic region.

From 2021 to 2023, the Russian Federation chaired the Arctic Council (AC), the main international forum for Arctic development. The key priority of the Russian chairmanship was to ensure responsible management for the sustainable development of the Arctic. The ThinkArctic - ThinkGlobal project was implemented jointly by the Roscongress Foundation and the Centre for Comprehensive European and International Studies of the National Research University Higher School of Economics to support the Russian chairmanship. The goal of the project was to promote Russia's sustainable development agenda, strengthen constructive international dialogue and propose new points of consensus for Russia's interaction with the Arctic Council member and observer states, as well as non-Arctic states.

Within the ThinkArctic - ThinkGlobal project, 10 international events were organized (see Box 1) with the participation of experts, scholars, governmental officials and business representatives from Russia, Finland, Canada, Norway, Iceland, Great Britain, China, India, Japan, and Brazil. A full list of experts is provided in Annex 1. Interim results of the project were presented at special sessions of the St. Petersburg International Economic Forum and the Eastern Economic Forum in 2022 and 2023. One of the important results of the project was the strengthening of academic dialogue between research centers and universities in Russia and other countries, a complete list of which is presented in Annex 2.

Box 1. ThinkArctic – ThinkGlobal project events

1. 29.11.2021 – Russian-Finnish Cooperation for Sustainable Development of the Arctic Region
2. 07.12.2021 – Russian-Canadian Cooperation for Sustainable Development of the Arctic Region
3. 26.05.2022 – Russian-Chinese Cooperation for Sustainable Development of the Arctic Region
4. 16.06.2022 – International Cooperation as a Key to Arctic Sustainable Development
5. 07.09.2022 – The Eastern Dimension of International Cooperation in the Arctic
6. 07.09.2022 – The Global Impact of the Russian Arctic: Opportunities for South Asia
7. 30.11.2022 – Multilateral Cooperation in the Arctic through the Prism of International Arctic Organizations: a Situational Analysis
8. 19.04.2023 – Prospects for Scientific Cooperation between Russia and Brazil for Sustainable Development of the Arctic
9. 25.05.2023 – Prospects for BRICS Cooperation for Sustainable Development in the Arctic
10. 14.06.2023 – The Arctic as a Unique Area for International Cooperation: Prospects and Opportunities

The events with Western countries, in particular with Finland and Canada, were held before the international political crisis of 2022-2023 related to the Russian-Ukrainian conflict, so a number of these formulated during the expert dialogues do not reflect the current geopolitical situation. At the same time, the recommendations proposed as a result of the project and the list of prospective areas of cooperation between Russia and Western countries in the field of sustainable development of the Arctic fully take into account the changed international context.

This final report seeks to reflect fundamental changes in the architecture of international relations in the Arctic in order to identify updated regional and sectoral priorities for international partnership in the region in the interests of the Russian Federation. **The report consists of six sections:**

1. The Role of the Arctic in Russia's Socio-Economic Development;
2. Climate Change and Challenges for Sustainable Development in the Russian Arctic;
3. Experience of Bilateral Cooperation with Western Countries (The Example of Interaction with Finland, Canada, and Norway);
4. Experience of Bilateral Cooperation with Asian and Latin American Countries (The Example of Interaction with China, India, Japan, Republic of Korea, Singapore, Brazil);
5. International Regimes as a Factor of Sustainable Development in the Arctic Region;
6. Multilateral Cooperation in the Arctic: Traditional and New formats (Arctic Council, BRICS and other platforms).

Each section summarizes the theses of the events held, describes key bilateral and multilateral projects and initiatives implemented with the participation of Russia and international partners, formulates a list of recommendations for strengthening bilateral and multilateral cooperation in the Arctic, taking into account current changes in the global economy and the system of international relations, and structures priority areas for cooperation in the sustainable development of the Arctic.

Key findings:

- The Arctic region faces a myriad of challenges to its sustainable development, such as decreasing living standards, underdeveloped infrastructure, environmental threats to public health, including that of indigenous peoples, and climate change as the most serious of these. These challenges are also relevant to the Russian Arctic, with permafrost thawing as the major concern, which covers more than 2/3 of the country.
- International Arctic regimes formalized both by bilateral and multilateral agreements ensure rational use and preservation of the region's natural resources as well as environmental safety.
- To ensure a sustainable agenda in the Arctic, it is necessary to consistently distinguish between cooperation issues and areas where there are cross-country contradictions in relations between Russia and Western countries.
- In the medium term, the Arctic can be the direction of the restoration of relations between Russia and Western countries, with a primary role to be played by scientific diplomacy, environmental protection, and support for indigenous peoples of the North.
- Decline in cooperation in the Arctic Council as the key institution of the Arctic governance system and refusal of the "Arctic Eight" countries to cooperate with Russia during its chairmanship narrow the window of opportunity to implement a comprehensive agenda for the sustainable development of the Arctic.
- Russia's isolation from traditional formats of cooperation in the Arctic highlights the need to find alternative partners, form new sites for cooperation, and build long-term cooperation formats that will be functional in times of crisis.
- The growing role of non-Western powers in world politics, especially China, India, Brazil and the BRICS as a key alliance of new centers of power, determines the possibility of involving new actors in the Arctic governance.
- The accumulated potential of the BRICS countries in the implementation of the Sustainable Development Goals, as well as the existing record of cooperation in this area within the BRICS allows to consider this format as one of the key platforms for promotion of sustainable development in the Arctic region.

2. The Role of the Arctic in Russia's Socio-Economic Development

The importance of the Arctic for Russia can hardly be overestimated: 28% of the country's territory lies above the Arctic Circle (Figure 1). The Arctic zone of the Russian Federation (AZRF) is home to 2.6 million people¹. The unique resource base of the Arctic territories, the transport capacity, the natural wealth, the need to ensure a decent standard of living for the population of the AZRF, and the importance of the Arctic in terms of national security determine the key role of the Arctic zone in Russia's development and the strengthening of its geopolitical and geoeconomic positions.

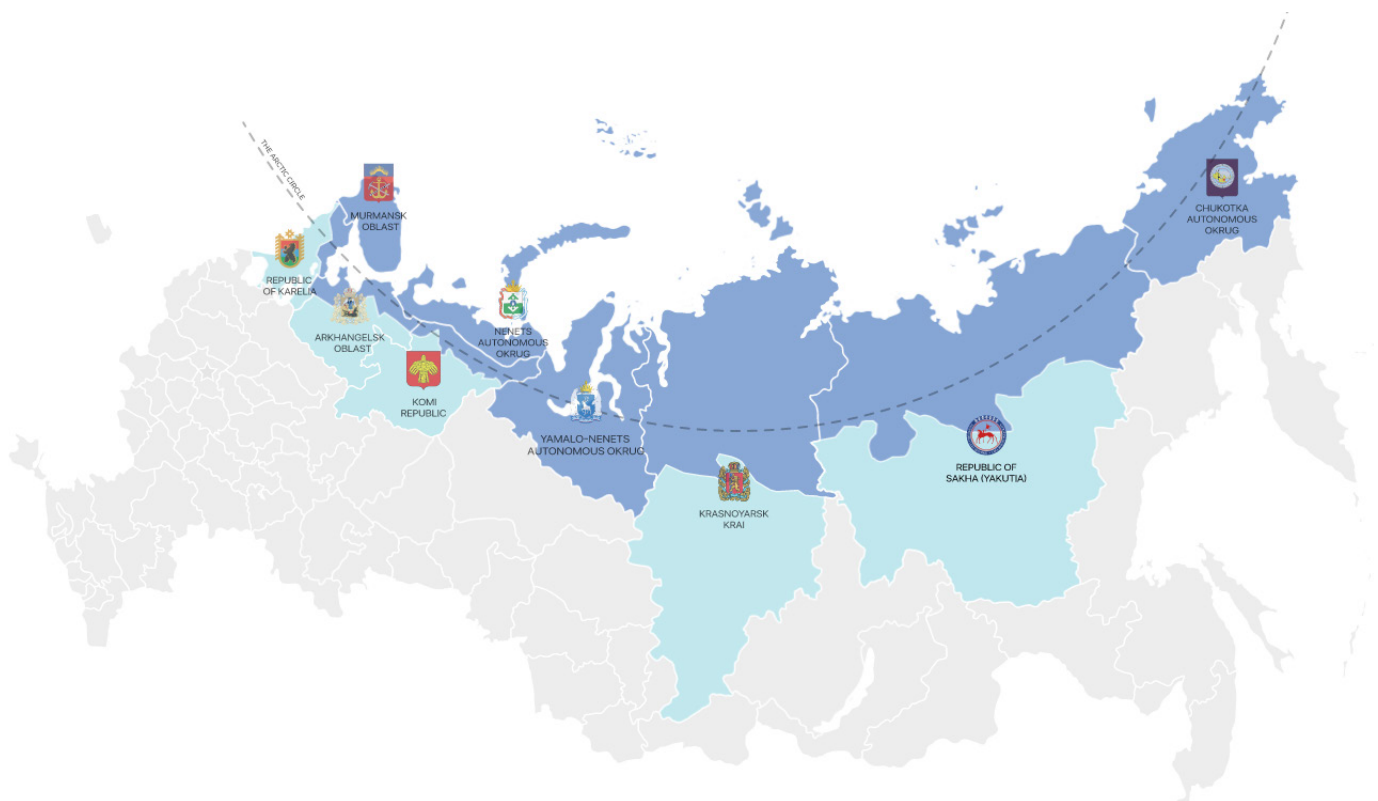


Figure 1. Map of Arctic Regions of Russia

Source: Arctic regions of Russia // Arctic Council of the Russian Presidency. 2023. [Electronic resource]. URL: <https://arctic-council-russia.ru/useful/> (accessed: 02.06.2023)

Rational management of the resources of the Arctic territories is strategically important to Russia. The Arctic has vast reserves of energy sources, precious and rare-earth metals. For example, 90% of Russia's natural gas production and 18% of its oil production are concentrated in the Arctic zone². It also contains most of Russia's reserves of gold (40%), chromium and manganese (90%),

- 1 Arctic regions of Russia // Arctic Council of the Russian Presidency. 2023. [Electronic resource]. URL: <https://arctic-council-russia.ru/useful/> (accessed: 02.06.2023)
- 2 Bogoyavlensky V.I., Bogoyavlensky I.V. Main results and prospects of oil and gas resources development in the Arctic // Proceedings of the Free Economic Society of Russia. 2019. №2.

platinum metals (47%), diamonds (100%), coal, nickel, antimony, cobalt, tin, tungsten, mercury, apatite (50%)³. At the moment, the subsoil of the Arctic is little exploited. At the same time, the resource potential of the region is enormous, and its exploitation should be in line with the principles of sustainable development.

Another aspect of the Arctic's strategic importance for Russia is the region's transport prospects. On the one hand, the transit potential of the Arctic Ocean and the development of the Northern Sea Route (NSR) as the main transport artery between Europe and Asia play a key role (tab. 1, fig. 2). On the other hand, a vital task for Russia is to form a transport network within the region that will link hard-to-reach subarctic settlements.

Table 1. Number of NSR voyages 2019-2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	135	170	153	155	157	121	280	439	452	349	165	153
2020	154	158	170	171	161	122	299	450	500	381	187	155
2021	160	157	165	178	197	153	348	481	504	464	238	180
2022	184	134	207	206	201	-	-	-	-	-	-	-

Source: Maps // Northern Sea Route Information Office. 2022. [Electron resource].

URL: from <https://arctic-lio.com/nsr-shipping-traffic-activities-in-may-2022/> (accessed: 02.06.2023)

3 Natural resources of the Arctic. Reference // RIA Novosti. 15.04.2010. [Electron resource]. URL: <https://ria.ru/20100415/220120223.html> (accessed: 02.06.2023)

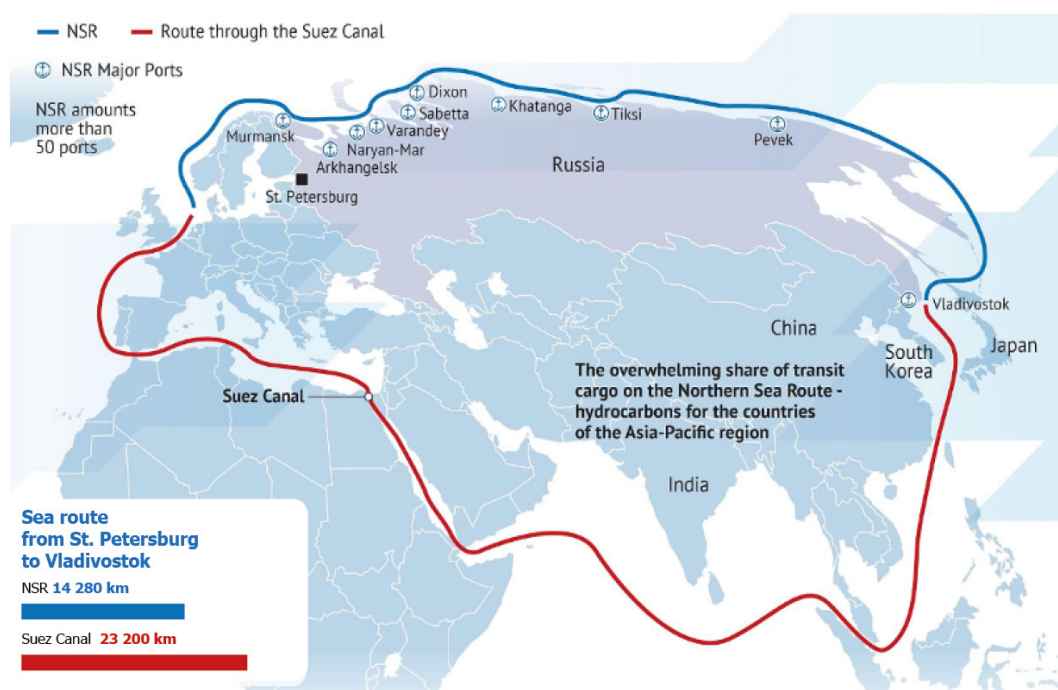


Figure 2. Comparison of the Northern Sea Route with the traditional maritime trade route between Asia and Europe

Source: The Northern Sea Route and its impact on global trade // Valdai International Discussion Club. 09/10/2018. [Electron resource]. URL: from <https://ru.valdaiclub.com/multimedia/infographics/sevmorput/> (accessed: 02.06.2023)

About 82,500 representatives of small indigenous peoples of the North, Siberia and the Far East live on the territory of the AZRF⁴. Their cultural and linguistic heritage and unique knowledge of the peculiarities of Arctic ecosystems are of great value. Russia has a responsibility to ensure a decent standard of living for the population of the Arctic zone, to develop the social infrastructure of Arctic population centers, and to create conditions for multiplying human capital.

The natural heritage of the Arctic includes more than 20,000 species of plants, animals, fungi and microorganisms⁵. Conserving the unique ecosystems of the Arctic zone, including through climate change mitigation and adaptation, plays an important role in Russia's sustainable development policy. There are currently 14 state nature reserves, the Russian Arctic National Park, and the Franz

4 Peoples of the Arctic // Clean Arctic. 2022. [Electronic resource]. URL: <https://cleanarctic.ru/peoples-of-the-arctic> (accessed: 02.06.2023)

5 Arctic (polar region) // Megabook. 2023. [Electronic resource].

URL: [https://megabook.ru/article/%D0%90%D1%80%D0%BA%D1%82%D0%B8%D0%BA%D0%B0%20\(%D0%BF%D0%BE%D0%B%D1%8F%D1%80%D0%BD%D0%B0%D1%8F%20%D0%BE%D0%B1%D0%BB%D0%B0%D1%81%D1%82%D1%8C\)](https://megabook.ru/article/%D0%90%D1%80%D0%BA%D1%82%D0%B8%D0%BA%D0%B0%20(%D0%BF%D0%BE%D0%B%D1%8F%D1%80%D0%BD%D0%B0%D1%8F%20%D0%BE%D0%B1%D0%BB%D0%B0%D1%81%D1%82%D1%8C)) (accessed: 02.06.2023)



Josef Land federal reserve in the Arctic and adjoining territories. The total area of the northern, arctic and subarctic protected areas is around 30 million hectares⁶.

National security interests also play an important role in Russia's strategy for developing the Arctic region. First of all, Russia's state border runs along the Arctic Ocean, the Barents Sea, the Kara Sea, the Laptev Sea, the East Siberian Sea and the Chukchi Sea⁶ it is 20,000 km long⁷. The Arctic is home to defense industries, the Northern Fleet base and military infrastructure facilities.

So, the special position of the Arctic zone implies the active involvement of the state as a regulator that will ensure the sustainable development of the region in accordance with the principles of responsible governance. In 2020, a presidential decree adopted the Strategy for the Development of the Arctic Zone of the Russian Federation and National Security for the period up to 2035⁸. The main statements of the Strategy are discussed in the context of the UN Sustainable Development Goals in Table 2.

6 Nature and Man // Clean Arctic. 2022. [Electronic resource]. URL: <https://cleanarctic.ru/nature-and-human> (accessed: 02.06.2023)

7 Gubin A. Russia's Military Capabilities in the Arctic // RSMD. 09.11.2014. [Electronic resource]. URL: <https://russiancouncil.ru/analytics-and-comments/analytics/voennye-vozmozhnosti-rossii-v-arktike/> (access date: 02.06.2023)

8 Decree of the President of the Russian Federation dated 26.10.2020 № 645 "and ensuring national security for the period until 2035" // Electronic fund of legal and normative-technical documents. Electronic resource]. URL: <https://docs.cntd.ru/document/566091182> (accessed: 24.02.2023)

Table 2 – Consistency of the Strategy for the Development of the Arctic Zone of the Russian Federation with the UN Sustainable Development Goals

Goals of the Strategy for the Development of the Arctic Zone of the Russian Federation	UN SDGs
<p>GOAL NO. 1: SOCIAL DEVELOPMENT</p> <p>Modernization of the healthcare system</p> <ul style="list-style-type: none"> – Development of high-tech medical care – Organization of medical support for ships sailing in the waters of the Northern Sea Route – Elimination of risks of harm to public health, including risks of spreading infectious and parasitic diseases – Ensuring social support for medical workers <p>Improvement of infrastructure</p> <ul style="list-style-type: none"> – Establishment of a modern urban environment in localities – State support for housing construction <p>Improving the quality of education</p> <ul style="list-style-type: none"> – Providing conditions for the organization of additional education for children in remote communities and rural settlements – Development of distance learning technologies <p>Preservation of cultural heritage</p> <ul style="list-style-type: none"> – Preserving and promoting cultural heritage and supporting traditional culture and the preservation and development of indigenous languages <p>Social guarantees and wellbeing of the population</p> <ul style="list-style-type: none"> – Financing the costs associated with providing housing subsidies for citizens leaving the Far North and equivalent areas – Creating a system of social guarantees for Russian citizens who work and live in the Arctic zone 	<p>SDG 3 – Good Health and Well-being SDG 4 – Quality Education SDG 6 – Clean water and sanitation SDG 8 – Decent Work and Economic Growth SDG 11 – Sustainable Cities and Communities</p>
<p>GOAL NO. 2: ECONOMIC DEVELOPMENT</p> <p>Responsible consumption</p> <ul style="list-style-type: none"> – Gradual transition to a closed-cycle economy <p>Development of the oil and gas industry</p> <ul style="list-style-type: none"> – Development of new mineral deposits – Increasing the volume of deep oil refining, liquefied natural gas, and gas chemical products <p>Modernization of the industrial sector</p> <ul style="list-style-type: none"> – Opening new industrial facilities and upgrading existing ones – Development of high technology and high-tech industries <p>Local communities support</p> <ul style="list-style-type: none"> – Introducing a programme of government support for traditional economic activities of SIM – Facilitating the procedure for providing citizens with land plots for economic and other activities not prohibited by law <p>Tourism development</p> <ul style="list-style-type: none"> – Government support for the construction of Arctic class cruise ships and development of tourism infrastructure 	<p>SDG 7 – Affordable and Clean Energy SDG 9 – Industry, Innovation and Infrastructure SDG 12 – Responsible Consumption and Production</p>

<p>GOAL NO. 3: INFRASTRUCTURE DEVELOPMENT</p> <ul style="list-style-type: none"> – Establishment of seaports and routes – Creation of a maritime operations headquarters to manage shipping along the entire water area of the Northern Sea Route – Construction of universal nuclear-powered icebreakers of project 22220, etc. at Russian shipyards – Construction and reconstruction of roads of local importance, including in settlements located in remote areas 	<p>SDG 9 – Industry, Innovation and Infrastructure SDG 11 – Sustainable cities and communities</p>
<p>GOAL NO. 4: DEVELOPMENT OF SCIENCE AND TECHNOLOGY</p> <ul style="list-style-type: none"> – Development of land vehicles and aviation equipment for work in the natural and climatic conditions of the region – Conducting complex expeditionary research in the Arctic Ocean – Creation of scientific and educational centers in priority areas of research 	<p>SDG 9 – Industry, Innovation and Infrastructure</p>
<p>GOAL NO. 5: PROTECT THE ENVIRONMENT AND ENSURE ENVIRONMENTAL SAFETY</p> <p>Environmental protection</p> <ul style="list-style-type: none"> – Establishing high-protected natural areas <p>Development of monitoring systems</p> <ul style="list-style-type: none"> – Identifying, assessing and accounting for objects of accumulated environmental damage – Development of a unified system of state environmental monitoring – Regular assessment of the impact of nuclear facilities on the environment <p>Pollution prevention and elimination</p> <ul style="list-style-type: none"> – State support for waste management activities in the region – Minimizing atmospheric air emissions and discharges of pollutants into water bodies during economic and other activities in the region 	<p>SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land</p>
<p>GOAL NO.6: DEVELOP INTERNATIONAL COOPERATION</p> <p>Investment cooperation</p> <ul style="list-style-type: none"> – Development of common principles for the implementation of investment projects in the region with the participation of foreign capital <p>Ensuring security in the Arctic</p> <ul style="list-style-type: none"> – Assistance in building up the efforts of the Arctic states to create a unified regional system of search and rescue, prevention of man-made disasters and elimination of their consequences <p>Implement programs to support the population</p> <ul style="list-style-type: none"> – Establish joint projects in education, investment, support for indigenous peoples, etc – Assistance in strengthening ties between indigenous peoples residing in the Arctic zone of the Russian Federation, and indigenous peoples living in the Arctic territories of other countries <p>Scientific and educational cooperation</p> <ul style="list-style-type: none"> – Development and implementation of joint international basic and additional professional educational programs in the field of development and exploration of the Arctic – Implementation of the Agreement on Strengthening International Arctic Scientific Cooperation 	<p>SDG 4 – Quality Education SDG 9 – Industry, Innovation and Infrastructure SDG 13 – Climate Action SDG 17 - Partnerships for the Goals</p>

<p>GOAL NO. 7: ENSURE PROTECTION OF THE POPULATION AND TERRITORIES OF THE ARCTIC ZONE FROM EMERGENCIES</p> <p>Emergency prevention</p> <ul style="list-style-type: none"> – Develop emergency monitoring and forecasting systems in the region – Improving the security of critical and potentially hazardous facilities – Developing the Arctic integrated emergency rescue centers <p>Population protection</p> <ul style="list-style-type: none"> – Setting the requirements for emergency rescue equipment and means to provide assistance and preserve life and health – Ensuring the evacuation (relocation) of citizens from populated areas due to the consequences of emergencies 	<p>SDG 9 – Industry, Innovation and Infrastructure SDG 11 – Sustainable Cities and Communities</p>
<p>GOAL NO. 8: ENSURE PUBLIC SAFETY</p> <ul style="list-style-type: none"> – Prevention of criminal, extremist and terrorist activities – Expanding the network of rehabilitation and adaptation centers in order to provide comprehensive social assistance to persons released from prison 	<p>SDG 16 – Peace, Justice and Strong Institutions</p>
<p>GOAL NO. 9: ENSURE MILITARY SECURITY</p> <ul style="list-style-type: none"> – Improving the composition and structure of the Russian Armed Forces – Developing the basing infrastructure, and carrying out measures for the operational equipping of territories – Equipping the Russian Armed Forces with modern weapons 	<p>SDG 16 – Peace, Justice and Strong Institutions</p>

Source: Decree of the President of the Russian Federation of 26.10.2020 No. 645 “On the Strategy for Development of the Arctic Zone of the Russian Federation and Ensuring National Security for the Period to 2035”

The unique conditions of the Arctic zone pose a number of challenges for Russia in ensuring the region’s sustainable development. These are discussed in more detail in Table 3. The outcome of the long-term development strategy for the AZRF depends on how well these challenges can be addressed.

Table 3 – Challenges of development of the Arctic region of Russia, influencing the implementation of the UN SDGs

UN SDGs	Challenges
SDG 1 – No Poverty	<ul style="list-style-type: none"> – Low income of indigenous minorities of the North: 8% of the population in Murmansk region, 9% in Nenets Autonomous District, 4.5% in Yamal-Nenets Autonomous District, 4.7% in Chukotka Autonomous District, 14.5% in Krasnoyarsk region, 14% in Komi Republic, 13% in Karelia Republic, 11.8% in Arkhangelsk region and 15.6 in Sakha Republic are below the poverty line in the Arctic zone of the Russian Federation⁹ – Higher cost of living with low-income growth for the indigenous peoples of the North and reduced opportunities for self-sufficiency in food due to climate change¹⁰
SDG 2 – Zero Hunger	<ul style="list-style-type: none"> – Low food self-sufficiency and food insecurity in the AZRF: high dependence on food imports from other regions or from abroad, food security levels of indigenous minorities of the North on average 5-6 times lower than the rest of the population¹¹ – Transport and logistics threats to food security: difficult access to many villages in the AZRF, expensive and long delivery times¹² – Legislative gaps in the regulation of traditional activities of Russian indigenous minorities of the North: lack of official recognition of the status of reindeer herder, fisherman and hunter as professions, inability to register nomadic housing as living quarters¹³
SDG 3 – Good Health and Well-being	<ul style="list-style-type: none"> – External (natural) challenges: atmospheric, soil and, in some cases, food contamination by harmful substances, unfavorable natural and climatic conditions¹⁴ – Challenges to the functioning of the healthcare system in the Arctic federal entities: understaffing and low salaries, insufficient digitalization, limited access to ambulance and emergency medical care, lack of feldsher-midwife stations¹⁵ – Emergence of new diseases and intensification of old ones due to climate change and melting of permafrost¹⁶ – Deterioration of food quality, lifestyle and mental health of Arctic indigenous peoples due to climate change and general environmental degradation¹⁷

9 Number of population with monetary incomes below the poverty line (subsistence level) in Russia as a whole and by constituent entities of the Russian Federation, as a percentage of the total population // Rosstat. [Electronic resource].

URL: <https://rosstat.gov.ru/storage/mediabank/tab2-1.xlsx> (accessed: 10.08.2022)

10 Rosqvist G. C., Inga N., Eriksson P. Impacts of climate warming on reindeer herding require new land-use strategies // *Ambio*. 2022. Vol. 51. №. 5. P. 1247-1262.

11 UN Sustainability Development Goals SDG 2 – Zero Hunger // Arctic Risk Platform. [Electronic resource]. URL: <https://arcticrisk.org/sdg/sdg2/> (accessed: 16.05.2023)

12 Dudin M. N., Anischenko A. N. Ensuring Food Security of the Arctic Zone Regions: New Challenges and Opportunities in the Accession to Industry 4.0 // *Food Policy and Security*. 2021. VOL. 8. №. 2. C. 167-178.

13 Nikitenko M. E., Trofimova I. B. Food security in the Arctic zone of the Russian Federation // *Society: Politics, Economics, Law*. 2016. №. 9. C. 33-37.

14 Ruzanova P. D., Mazhinsky S. V. The problem of health care in Russia's Arctic Zone // *The Newman in Foreign Policy*. 2021. Vol. 5. №. 62 (106). P. 42-46.

15 Decision of the Council on the Arctic and Antarctic under the Federation Council of the Federal Assembly of the Russian Federation on 'Current Problems of Public Health in the Constituent Entities of the Russian Federation Constituent in the Arctic Zone of the Russian Federation' // Federation Council. Retrieved June 2, 2023 from <http://council.gov.ru/media/files/bE6wXytkoamQKVBg39yyPq6wR0grnayf.pdf>

16 Everett L. Understanding and Responding to Global Health Security Risks from Microbial Threats in the Arctic: Proceedings of a Workshop. 2020.

17 UN Sustainability Development Goals SDG 3 - Good Health & Well-Being // Arctic Risk Platform. [Electronic resource]. URL: <https://arcticrisk.org/sdg/sdg3/> (accessed: 16.05.2023)

SDG 4 – Quality Education	<ul style="list-style-type: none"> – Personnel issues: acute staff shortage (25-30%) and obsolete material and technical base of educational institutions (30-40%) in the AZRF¹⁸ – Challenges in organization of the educational process: difficulties in the organized teaching of school-age indigenous children due to long distances and low population density¹⁹ – Difficulties in digitalization – Lack of socio-cultural component in curricula²⁰
SDG 5 – Gender Equality	<ul style="list-style-type: none"> – The need for the Arctic states to have formal obligations relating to Gender Equality, including special attention to the rights of indigenous peoples – The issue of violence and its relationship to social, cultural, political, legal and other aspects²¹
SDG 6 – Clean Water and Sanitation	<ul style="list-style-type: none"> – Violation of hygienic standards for the content of inorganic and organic substances and for sanitary indicators in drinking water samples. In Karelia, 81.5% of centralised sources do not meet sanitary and epidemiological requirements. In this region, as well as in Murmansk Oblast, 55-58% of water supply systems do not meet the sanitary regulations²² – Centralised water supply systems are characterised by increased wear and tear: clogging of water during transportation; lack of equal and sufficient access to drinking water for the population of the AZRF²³
SDG 7 – Affordable and Clean Energy	<ul style="list-style-type: none"> – Use of environmentally unsafe fuels: about 12 thousand diesel power plants are in operation in the Russian Arctic; energy supply is provided by coal, wood and nuclear energy²⁴ – High depreciation of energy infrastructure: in some regions of the AZRF, the level of depreciation of electricity, gas and steam supply assets is higher than the Russian average (48.4%). In Karelia 50.9%, in Murmansk Region 66.5%, in Yamalo-Nenets Autonomous District 53.8%, in Arkhangelsk Region 49%²⁵ – Low level of access to energy in many isolated areas: electricity tariffs in the isolated electricity supply systems of the Far North regions are 5 to 55 times higher than the Russian average. In total, more than 30,000 settlements are fed from local power supply systems²⁶
SDG 8 – Decent Work and Economic Growth	<ul style="list-style-type: none"> – Relatively high unemployment: with an average unemployment rate in Russia of 5.2% in 2022, the unemployment rate in Karelia was 9.1%, in Komi Republic 9.3%, in Nenets Autonomous District 10.3%, in Arkhangelsk Region 8%, in Murmansk Region 6.6% and in Yakutia 8.3%²⁷ – Low standard of living in the Arctic: the AZRF has been characterised by a long-term migration outflow of population

18 Peculiarities of the development of the education system in the Arctic regions of the Russian Federation // Alexander Akimov. Retrieved June 2, 2023 from <https://aleksandrakimov.ru/posts/osobennosti-razvitiya-sistemy-obrazovaniya-v-arkticheskikh-regionah-rossiyskoy-federacii>

19 Määttä K., Uusiautti S. Arctic education in the future // Human migration in the Arctic: the past, present, and future. 2019. C. 213-238.

20 Määttä K. et al. Five basic cornerstones of sustainability education in the Arctic // Sustainability. 2020. Vol. 12. №. 4. P. 1431.

21 Oddsdóttir E. E. et al. Gender Equality for a thriving, sustainable arctic // Sustainability. 2021. VOL. 13. №. 19. P. 10825.

22 State Report «On the State of Sanitary and Epidemiological Welfare of the Population in the Russian Federation in 2021» // Federal Service for Supervision of Consumer Rights Protection and Human Welfare. 2022. [Electronic resource]. URL: <https://www.rospotrebnadzor.ru/upload/iblock/594/sqywwl4tg5arqff6xvl5dss0l7vuuank/Gosudarstvennyy-doklad.-O-sostoyanii-sanitarno-epidemiologicheskogo-blagopoluchiya-nasele-niya-v-Rossiyskoy-Federatsii-v-2021-godu.pdf> (accessed: 02.06.2023)

23 Bogdanova E., Lobanov A., Andronov S.V., Soromotin A., Popov A., Skalny A.V.; Shadyuko O., Callaghan T.V. Challenges of Changing Water Sources for Human Wellbeing in the Arctic Zone of Western Siberia. Water 2023. Vol. 15. P.1577.

24 Varivodov V.N., Kovalev D.I., Golubev D.V., Elfimov S.A., Zhulikov S.S. Technical solutions for high-voltage power transmission in Arctic conditions // Russian Arctic. 2023. Vol. 5(1). C. 45-57.

25 Degree of depreciation of fixed assets at the end of the year for the full range of organisations from 2017 // EMISS. 2023. Retrieved June 2, 2023 from <https://fedstat.ru/indicator/58545>

26 Zmieva K.A. Problems of energy supply in the Arctic regions // The Russian Arctic. 2020. №8. C. 9.

27 Labour resources, employment and unemployment // Federal State Statistics Service. 2023. [Electronic resource]. URL: https://rosstat.gov.ru/labour_force (accessed: 02.06.2023)

SDG 9 – Industry, Innovation and Infrastructure	<ul style="list-style-type: none"> – Low level of infrastructure development: the capital intensity of most regions in the AZRF is lower than the Russian average. In Russia the average in 2021 is 23408 mln RUB/ thous. km², in Karelia 7159 mln RUB/ thous. km², in Komi Republic 11227 mln RUB/ thous. km², in Nenets Autonomous District 6270 mln RUB/ thous. km², in Krasnoyarsk Territory 3054 mln RUB/ thous. km², in Yakutia 1499 mln RUB/ thous. km², in Chukotka Autonomous District 402 mln RUB/ thous. km² ²⁸ – Remoteness of settlements from each other: with a high level of urbanization, the elements of Arctic specificity include dispersion, low density and unevenness of settlement, focal nature of territory development²⁹
SDG 10 – Reduced Inequalities	<ul style="list-style-type: none"> – Arctic Indigenous Peoples' complex relationship with non-indigenous population: displacement from traditional living areas and challenges related to the inclusion of indigenous peoples in the political and economic systems of nation states³⁰ – Changing ecosystems in indigenous territories due to global climate change: endangerment of many fish species by melting ice; changes in reindeer migration routes; threats to indigenous sacred sites³¹
SDG 11 – Sustainable Cities and Communities	<ul style="list-style-type: none"> – Poor quality of the capital housing stock: in many settlements of the North, the bulk of the housing stock (up to 80% or more) is still made up of one-storey wooden houses without modern amenities³² – Poor urban infrastructure and lack of a comfortable urban environment: about 50% of Polar residents cite the poor quality of the urban environment as a possible reason for changing their place of residence³³
SDG 12 – Responsible Consumption and Production	<ul style="list-style-type: none"> – Accelerating economic development: threatening the sustainability of both regional ecosystems and local communities – Pollution issues: plastic and microplastic pollution and pollution related to improper disposal of fuels and lubricants are particularly acute³⁴. In Opasova Bay (Murmansk region), the concentration of microplastics is 496,500 particles per km², which is comparable to the levels observed in the global ocean rubbish patches³⁵

28 Availability of fixed assets at the end of the year at full accounting value for the full range of organisations since 2017 // EMISS. 2023. Retrieved June 2, 2023 from <https://www.fedstat.ru/indicator/58538>

29 Gres R. A., Zhikharevich B. S., Pribyshyn T. K. Arctic specificity in the strategies of Arctic municipalities. Proceedings of the Russian Geographical Society. 2022. T. 154. № 1. C. 6.

30 Slezkin Y., Werth P. Arctic Mirrors: Russia and the Small Peoples of the North // New Literary Review. 2019.

31 Davydov A., Mikhailova, G. Climate change and consequences in the Arctic: perception of climate change by the Nenets people of Vaigach Island // Global Health Action. 2011. Vol. 4. № 1. 8436.

32 Arctic cities and sustainable development // GoArctic. 12.04.2019. [Electronic resource]. URL: <https://goarctic.ru/society/arkticheskie-goro-da-i-ustoychivoe-razvitiye/> (accessed: 02.06.2023)

33 Development of the urban environment will be discussed at the events of the Russian Chairmanship of the Arctic Council // TASS. 03/17/2022. [Electronic resource]. URL: <https://tass.ru/obschestvo/14101965>(accessed: 02.06.2023)

34 The Arctic and Microplastics: Small Steps to Big Harm // Vedomosti. 02/03/2022. [Electronic resource]. URL: https://www.vedomosti.ru/ecology/protection_nature/articles/2022/02/03/907781-arktika-i-mikroplastik-malenkimi-shagami-k-bolshomu-vredu (accessed: 02.06.2023)

35 Environmental problems in the Russian Arctic // GoArctic. 10/30/.2020. [Electronic resource]. URL: <https://goarctic.ru/society/ekologicheskie-problemy-rossiyskoy-arktiki/>(accessed: 02.06.2023)

SDG 13 – Climate Action	<ul style="list-style-type: none"> – Temperature rise. Temperatures in the Russian Arctic are rising about 4 times faster than in the world as a whole: every decade they become 0.71°C warmer³⁶ – Melting ice. The length of Arctic summer sea ice is shrinking by 13% per decade. As the ice surface decreases and the ocean surface becomes bare, the rate of increase in global temperature could accelerate by 25-40% – Permafrost thawing is eroding the ground and threatening to have a severe negative impact on Arctic infrastructure, up to 50% of which could be at risk by 2050. In some areas and human settlements, the carrying capacity of permafrost has already been reduced by up to 45% compared to the 1970s³⁷ – Additional emissions of methane, which has 25 times the global warming potential of CO₂³⁸
SDG 14 – Life Below Water SDG 15 – Life on land	<ul style="list-style-type: none"> – The constant reduction in ice cover poses a risk to species particularly dependent on the presence of ice: polar bears, narwhals, walrus, seals and others. Over the past 20 years, the area covered by ice in winter has fallen by a third, and this rate continues to increase³⁹ – Changes in snow cover are also leading to changes in the lifestyle of some species: many species can no longer rely on a thick layer of snow to support winter hibernation; it is becoming harder to find food
SDG 16 –Peace, Justice and Strong Institutions	<ul style="list-style-type: none"> – Governance and geopolitical struggles in the region: governance systems and building stable and effective international regimes in the region, including management of common spaces (water, etc.) and resource development (fisheries) – Protection of the rights of indigenous peoples divided in several nation states (Eskimos, Saami, Aleuts, etc.) – Increasing militarisation: states unfriendly to Russia, primarily the USA and the NATO bloc, have increased their proactive military activities in the Arctic⁴⁰. – Arctic and non-Arctic states' rights to oil and gas deposits in the Arctic: according to some estimates, the Arctic contains about 13% of the world's undiscovered oil and about 30% of natural gas⁴¹
SDG 17 – Partnership for the Goals	<ul style="list-style-type: none"> – High level of conflict in the world and deteriorating relations between Russia and Western countries: in March 2022, due to the escalation of the conflict in Ukraine, the Arctic Council member countries - Canada, Denmark, Finland, Iceland, Norway, Sweden and the USA - reported suspending their participation in activities – Relatively underdeveloped public-private partnership: in the 2022 ranking of Russian constituent entities by level of public-private partnership development, the Murmansk Oblast ranks 37th, the Komi Republic ranks 45th, the Krasnoyarsk Krai 51st, the Nenets Autonomous District 71st and the Chukotka Autonomous District 72nd⁴²

Source: compiled by the authors

- 36 Rantanen M., Karpechko A.Y., Lipponen A. et al. The Arctic has warmed nearly four times faster than the globe since 1979. *Commun Earth Environ* 3. 2022. Vol. 168.
- 37 Streletskiy D. A., Suter L. J., Shiklomanov N. I., Porfiriev B. N., Eliseev D. O. Assessment of climate change impacts on buildings, structures and infrastructure in the Russian regions on permafrost // *Environmental research letters*. 2019. Vol. 14. No. 2. P. 1–15.
- 38 Dean J. F., Middelburg J. J., Röckmann T., Aerts R., Blauw L. G., Egger M., Jetten M. S. M., de Jong A. E. E., Meisel O. H., Rasigraf O., Slomp C. P., in't Zandt M. H., Dolman A. J. Methane feedbacks to the global climate system in a warmer world // *Reviews of Geophysics*. 2018. Vol. 56. P. 207– 250.
- 39 Polar Bears Affected by Climate Change // *Defenders of Wildlife*. 11/08/2022. [Electronic resource]. URL: <https://defenders.org/blog/2022/11/polar-bears-affected-climate-change> (accessed: 02.06.2023)
- 40 On the Militarisation of the Arctic // RIAC. 12/22/2022. [Electronic resource]. URL: https://russiancouncil.ru/analytics-and-comments/analytics/k-voprosu-o-militarizatsii-arktiki/?sphrase_id=98753093 (accessed: 02.06.2023)
- 41 Oil and Natural Gas Resources of the Arctic // Geoscience news and information. [Electronic resource]. URL: <https://geology.com/articles/arctic-oil-and-gas/> (accessed: 02.06.2023)
- 42 Rating of the Russian Federation subjects by the level of development of public-private partnership in 2022 // Ministry of Economic Development of the Russian Federation. 2022. [Electronic resource]. URL: https://www.economy.gov.ru/material/file/a8ccd7ef26dbd590c0f5e-2faaf0efbf1/reiting_gchp_2022.pdf (accessed: 02.06.2023)

3. Climate Change and Challenges to Sustainable Development in the Russian Arctic

3.1. Climate Change Implications in the Russian Arctic

Climate change is a key determinant of socio-economic development opportunities in the Arctic. The region is one of the most vulnerable to global climate change⁴³. Since the beginning of the 21st century, temperatures in the Arctic are rising twice as fast as the global average⁴⁴. Global warming is accelerating the melting of Arctic Sea ice. Roshydromet data shows that the temperature increase in the Russian Arctic from 1976 to 2020 was 0.8-1.2°C per decade, with the most rapid rise occurring on the Taimyr and East Siberian coastline⁴⁵. Since the 1980s, annual minimum Arctic Sea ice cover⁴⁶ has declined at a rate of 13% per decade and has now been nearly halved⁴⁷. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) notes that the annual minimum sea-ice extent in the Arctic has decreased by $-12.8 \pm 2.3\%$ per decade from 1979 to 2019, and the annual maximum sea-ice extent has decreased by $-2.7 \pm 0.5\%$ per decade from 1979 to 2019⁴⁸.

The rapid melting of the ice is boosting transport capacity in the Arctic. The navigation period along the Northern Sea Route is increasing: while in the 1980s it was no more than two months in August-September, today navigation is possible from July to October⁴⁹. In this context, its transit potential is also enhancing: the NSR is increasingly seen as an alternative to southern sea trade routes due to its much shorter length and potentially lower transport costs⁵⁰. For example, the distance between the ports of Porsgrunn (Norway) and Qingdao (China) along the NSR route is about 40% shorter than through the Suez Canal and the Strait of Malacca. According to some estimates, if Arctic warming accelerates by the end of the 21st century, routes from northern Europe to Asia and North America could be up to 50% shorter than those along southern trade routes⁵¹.

However, a number of assessments of transit potential indicate that the Northern Sea Route is much less commercially attractive than the Suez and Panama Canal routes due to high capital costs, the need for icebreaking services and the lack of infrastructure necessary for stable navigation

43 This section outlines the results of the research presented in the paper Stepanov I.A., Makarov I.A., Makarova E.A., Smolovik E. Climate Change and Challenges to Sustainable Development in the Russian Arctic // Climatic Change. 2023. Vol. 176. No 39. P.1-18.

44 IPCC special report on the ocean and cryosphere in a changing climate // IPCC, 2019. Cambridge: Cambridge University Press.

45 Report on Climate Specifics on the Territory of the Russian Federation for 2021 // Roshydromet. Moscow, 2022. P. 63.

46 Every year, the minimum ice cover in the Arctic falls in September and the maximum in March.

47 Report on Climate Specifics on the Territory of the Russian Federation for 2021 // Roshydromet. Moscow, 2022. P. 52.

48 Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the IPCC Sixth Assessment Report // IPCC, 2022. Cambridge: Cambridge University Press.

49 Mokhov I., Khon V. Duration of the navigation period and its changes for the Northern Sea Route: model estimates // Arctic: Ecology and Economics. 2015. Vol.2. № 18. P. 90.

50 Schøyen H, Bråthen S. The Northern Sea Route versus the Suez Canal: Cases from bulk shipping // Journal of Transport Geography. 2011. Vol. 19. № 4. P. 978. <https://doi.org/10.1016/j.jtrangeo.2011.03.003>

51 Khon V.C., Mokhov I.I., Semenov V.A. Transit navigation through Northern Sea Route from satellite data and CMIP5 simulations // Environmental Research Letters. 2017. Vol. 12. № 2. 024010 DOI 10.1088/1748-9326/aa5841

in Arctic conditions⁵². At the same time, the role of the NSR in domestic and transit traffic may increase significantly, which will boost economic development of the Arctic region.

Ice melting also increases the availability of Arctic resources. The region has large deposits of non-ferrous and rare-earth metals, hydrocarbons, gold, etc. According to the US Geological Survey, the Arctic contains 13% (90 billion barrels) of undiscovered oil reserves and 30% (47.3 billion m³) of natural gas⁵³. A number of studies indicate that 43 of the 61 major hydrocarbon deposits in the Arctic are located in Russia, most of them on the continental shelf⁵⁴. The Barents Sea has the most potential for the development of fisheries and the extraction of fossil fuels; the Kara Sea, also rich in fish resources, has fewer exploration and extraction opportunities⁵⁵. One of the difficulties in increasing oil and gas production on the Arctic shelf is the low availability of modern exploration and drilling technology and the need for extensive government support in this area⁵⁶.

The extensive nature of Arctic development, entrenched since Soviet times, largely contradicts the objectives of protecting the Arctic environment and preserving unique ecosystems. The greater “accessibility” of the Arctic region increases local environmental risks, such as pollution of soils, groundwater, rivers and seas with heavy metals, hydrocarbons, and other toxic substances. Intensive development of the Arctic shelf and increased shipping traffic in Arctic waters exacerbate the risks of oil spills and other accidents⁵⁷ that can result in the release of toxic pollutants, creating additional risks to the region’s environmental security⁵⁸. At the same time, the global transition to a low-carbon economy may, on the contrary, help to reduce fossil fuel production, including in the Arctic, which would have a positive impact on the quality of the environment in the region, while narrowing the window of opportunity for its economic development.

- 52 Makarov I.A., Sokolova A.K., Stepanov I.A. Prospects for the Northern Sea Route Development // International Journal of Transport Economics. 2015. Vol. 42. № 4. P. 438.
Aksenov Y., Popova E.E., Yool A., Nurser A.J.G., Williams T.D., Bertino L., Bergh J. On the future navigability of Arctic Sea routes: High-resolution projections of the Arctic Ocean and sea ice // Marine Policy. 2017. Vol. 75. P. 315.
- 53 Bird K.J., Charpentier R.R., Gautier D.L. et al. Circum-arctic resource appraisal: Estimates of undiscovered oil and gas north of the Arctic Circle // USGS Fact Sheet. 2018. P. 2044. <https://doi.org/10.3133/fs20083049>
- 54 Budzik P. Arctic oil and natural gas potential. Energy Information Administration, Office of Integrated Analysis and Forecasting, Oil and Gas Division // ARLIS, 2009. [Electronic resource]. URL: [https://www.arlis.org/docs/vol1/AlaskaGas/Paper/Paper_EIA_2009_ArcticOilGasPotenti al.pdf](https://www.arlis.org/docs/vol1/AlaskaGas/Paper/Paper_EIA_2009_ArcticOilGasPotential.pdf) (accessed: 30.09.2022)
- 55 Kjartan E., Ulfarsson G.F., Valsson T., Gardarsson S.M. Identification of development areas in a warming Arctic with respect to natural resources, transportation, protected areas, and geography // Futures. 2017. Vol. 85. P. 18. <https://doi.org/10.1016/j.futures.2016.11.005>
- 56 Stepanov I.A. Climate change and energy transition: Controversial Implications for the Arctic Region. In: Likhacheva A (Ed.), Arctic Fever. Political, Economic & Environmental Aspects, 2022. Palgrave Macmillan, Singapore. P. 70.
- 57 Bobylev S., Solovyova S., Sitkina K., Kiryushin P. Socio-economic aspects of environmental conflicts // Bulletin of Moscow University. Series 6. Economics. 2010. №. 2. P. 48.
- 58 Makarov I. A., Stepanov I. A. The environmental factor of economic development in the Russian Arctic // Problems of Economic Transition. 2016. Vol. 58. № 10. P. 849. <https://doi.org/10.1080/10611991.2016.1290437>



Climate change in the Russian Arctic threatens the biological security of the region: many Arctic animal and plant species are already on the brink of extinction, such as polar bears, seals, and walruses, because they cannot adapt to the rapid changes in climate and the increasing pressure on the environment⁵⁹; some seabirds nesting and breeding in the Arctic may die out forever by the end of the 21st century⁶⁰.

Climate change leads to higher average annual winter and spring temperatures, longer and more intense droughts, and more frequent lightning strikes, all of which exacerbate the risk of fires⁶¹. For example, since the beginning of the 21st century, the frequency of forest fires in Siberia has tripled and the area of fires has doubled⁶². Moreover, many fires do not go out in the cold season, but only smolder underground until the following spring and summer season. Such “zombie fires” or “winter fires”⁶³ are doubly dangerous because climate change increases the frequency of fires, while fires cause additional CO₂ emissions.

The number of floods will increase in some Arctic regions. Changes in snow thickness, meltwater volume and precipitation patterns will result in increased spring flooding, with the potential for physical climatic risks in the form of destruction of residential infrastructure, high costs to rebuild supply chains, and increased residential losses (including due to increased risks of communicable diseases⁶⁴).

- 59 Porfiriev B., Terentyev N. Ecological and climatic risks of socio-economic development of the Arctic zone of the Russian Federation // Ecological Bulletin of Russia. 2016. Vol. 1. P. 46.
Pagano A.M. et al. High-energy, high-fat lifestyle challenges an Arctic apex predator, the polar bear // Science. 2018. Vol. 359. № 6375. P. 568. <https://doi.org/10.1126/science.aan8677>
- 60 Porfiriev B., Terentyev N. Op. cit. P. 50.
- 61 Witze A. The Arctic is burning like never before--and that's bad news for climate change // Nature. 2020. Vol. 585. № 7825. P. 337.
Kharuk V.I., Dvinskaya M.L., Im S.T., Golyukov A.S., Smith K.T. Wildfires in the Siberian Arctic // Fire. 2020. Vol. 5. № 4. P. 106. <https://doi.org/10.3390/fire5040106>
- 62 Kharuk V.I., Dvinskaya M.L., Im S.T., Golyukov A.S., Smith K.T. Op. cit.
- 63 Chung E. Scientists track 'zombie fires' to predict where they'll rise from the earth // CBC, 05/19/2021. [Electronic resource]. URL: <https://www.cbc.ca/news/science/zombie-fires-1.6032452> (accessed: 11.11.2022)
- 64 Revich B.A. Climate change impact on public health in the Russian Arctic // Report UN in the Russian Federation, 2009. [Electronic resource]. URL: <http://www.unrussia.ru/sites/default/files/doc/Arctic-eng.pdf> (accessed: 11.11.2022)

The increasing frequency of extreme weather events and anomalies is also a direct consequence of climate change and poses significant public health risks. Such disasters are associated with direct injuries and health risks to people with respiratory diseases⁶⁵. Moreover, it is often difficult for affected people to obtain medical care in regions that have been cut off by extreme weather conditions⁶⁶. Changing weather patterns can lead to mental health risks, especially in indigenous communities⁶⁷. With temperature swings expected to increase, heat waves are likely to become one of the key public health issues in the Russian Arctic⁶⁸. Numerous regions around the world are affected by rising global sea levels caused by melting Arctic glaciers, which could lead to flooding of coastal infrastructure and thousands of deaths worldwide.

Emissions of greenhouse gases, in particular carbon dioxide and methane, may increase sharply as the Arctic Sea ice melts⁶⁹. This is mainly due to the enormous stores of carbon and methane in the seas, soils, and permafrost of the Arctic⁷⁰. Although deep permafrost is protected from melting by a transient layer of ice, models have shown that further increases in the depth of seasonal thaw resulting from higher air temperatures would upset the established equilibrium⁷¹.

With both clear positive and negative consequences of climate change in the Russian Arctic, it is difficult to comprehensively assess their magnitude and pace in a regional and sectoral context. Many of the negative consequences of warming in the Arctic are likely to occur on their own, regardless of any adaptation measures that are taken. At the same time, the opportunities to reap the benefits of climate change in the Arctic, for example through the development of new mineral deposits and navigation routes, will largely depend on the extent to which public policies and new investment and technological solutions are put in place.

65 Climate change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change // IPCC, 2007. Geneva, Switzerland.

66 Revich B.A. Op. cit.

67 Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the IPCC Sixth Assessment Report // IPCC, 2022. Cambridge: Cambridge University Press.

68 Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report // IPCC, 2021. Cambridge: Cambridge University Press.

69 Makarov I. A., Stepanov I. A. The environmental factor of economic development in the Russian Arctic // Problems of Economic Transition. 2016. Vol. 58. № 10. P. 847–863. <https://doi.org/10.1080/10611991.2016.1290437>

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70 IPCC special report on the ocean and cryosphere in a changing climate // IPCC, 2019. Cambridge: Cambridge University Press.

Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report // IPCC, 2021. Cambridge: Cambridge University Press.

71 Miner K.R. et al. (Permafrost carbon emissions in a changing Arctic // Nature Reviews Earth & Environment, 2022. Vol. 3. P. 58. <https://doi.org/10.1038/s43017-021-00230-3>

3.2. Permafrost Thawing as a Factor of Sustainable Development of the Russian Arctic

Permafrost thawing is one of the most serious consequences of climate change in the Russian Arctic. However, many integrated assessment models do not take this factor into account when predicting the effects of climate change, and therefore often overestimate the economic benefits to the Russian economy from warming in the Arctic. For example, the RICE model developed by W. Nordhaus shows that Russia will have the lowest social cost of carbon⁷². The Stern Review notes that in the northern latitudes of Canada, Russia, and the Scandinavian countries an increase in mean annual temperature by 2 or 3 °C could produce substantial net benefits including higher yields in agricultural crops, less winter deaths, shorter heating seasons and increased tourism⁷³. Roson and Sartori⁷⁴ in their climate change damage assessment for 140 countries, concluded that Russia is one of the countries that is most likely to derive some benefits from the rise in mean annual temperature up to 3°C. These would consist of an increase in the inflow of tourists from outside the country and a decrease in the tourist outflow.

Despite the fact that the climate processes taking place in the Arctic are irreversible, the scale and extent of the impact of these changes on the economy and society, as well as the risks and opportunities for socio-economic development of the northern regions of Russia, remain largely uncertain. One of the main reasons for the inaccuracy of the results of integrated assessment models is that they do not take into account the links between ongoing economic and physical processes and the rather specific local effects of climate change in the Arctic; they are also based on limited data⁷⁵. In real life the economic benefits to Russia from climate change are likely to be offset by losses from melting permafrost.

Permafrost covers up to 2/3 of the territory of Russia and covers 28 constituent entities of the country; many large industrial enterprises and cities are located there. In 9 regions (Komi Republic, Sakha Republic (Yakutia), Nenets, Yamalo-Nenets, Khanty-Mansi, Chukotka Autonomous Okrug, Krasnoyarsk Territory, Magadan Region, Kamchatka Territory), permafrost covers most of the economically developed territory (fig. 3)⁷⁶.

72 Nordhaus W. Estimates of the Social Cost of Carbon: Background and Results from the Rice-2011 Model // Cowles Foundation Discussion Paper 1826, 2011. P. 21. <http://dx.doi.org/10.2139/ssrn.1945844>

73 Stern N. et al. The economics of climate change: the Stern review // Cambridge University press, Cambridge, 2007.

74 Roson R., Sartori M. Estimation of climate change damage functions for 140 regions in the GTAP9 database // Policy Research Working Paper No. 7728, 2016. World Bank, Washington, DC.

75 Ackerman F., DeCanio S.J., Howarth R.B., Sheeran K. Limitations of integrated assessment models of climate change // Climatic Change. 2009. № 95. P. 299. <https://doi.org/10.1007/s10584009-9570-x>

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Lenton T.M., Ciscar J.C. Integrating tipping points into climate impact assessments // Climatic Change. 2013. Vol. 117. P. 585–597. <https://doi.org/10.1007/s10584-012-0572-8>

Weyant J. Some contributions of integrated assessment models of global climate change // Review of Environmental Economics and Policy. 2017. Vol. 11. № 1. P. 115–137.

76 Porfiryev B., Eliseev D., Streletsky D. Economic assessment of the effects of permafrost degradation under the influence of climate change on the sustainability of road infrastructure in the Russian Arctic // Bulletin of the Russian Academy of Sciences. 2019. Vol. 89. № 12. P. 1236.

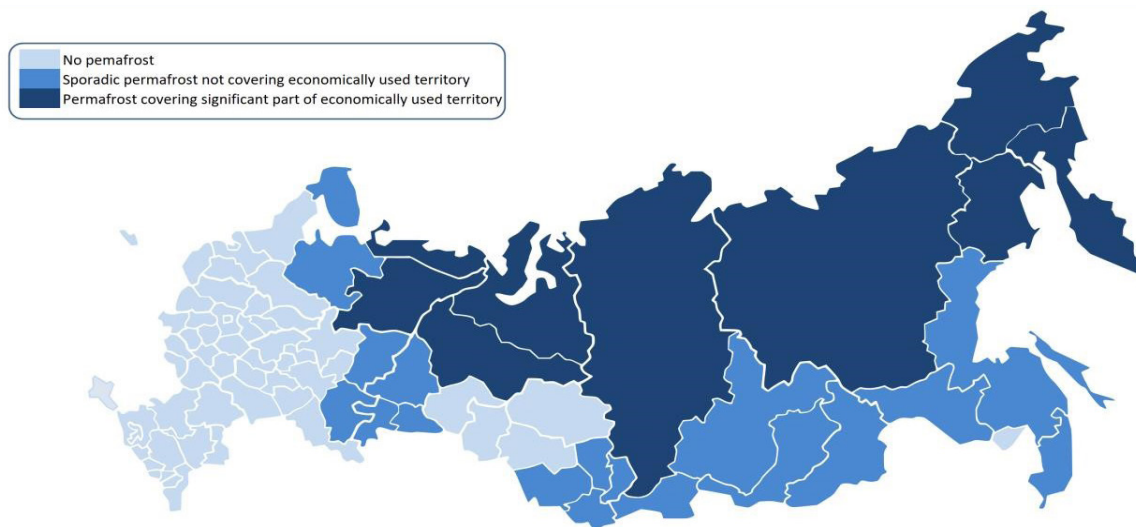


Figure 3. Russian regions with territories covered by the permafrost

Source: adapted by the authors from Streletskiy D.A., Suter L.J., Shiklomanov N.I., Porfiriev B.N., Eliseev D.O. Assessment of climate change impacts on buildings, structures and infrastructure in the Russian regions on permafrost // Environmental research letters. 2019. Vol. 14. № 2. P. 1–15.

Note: The boundaries of the Russian Federation and its regions are indicated according to the Constitution of the country as of September 2022.

In several areas near the southern boundary of continuous permafrost spreading, the thawing layer increases with a trend of up to 15 cm per decade. By the middle of the 21st century, the area covered by permafrost may decrease by $22\pm 7\%$ in the SSP2-4.5⁷⁷ scenario and by $28\pm 10\%$ in the SSP5-8.5 scenario. By the end of the century, the permafrost area could decrease by $40\pm 15\%$ and $72\pm 20\%$, respectively⁷⁸.

Permafrost thawing potentially poses a systemic macroeconomic risk to a substantial part of the Russian economy. Permafrost lays the foundation for the homes of almost 2.5 million people (1.7% of the total population), critical infrastructure, including pipelines, and several industrial

77 Shared Socioeconomic Pathways (SSP) are scenarios for the socio-economic development of the world up to 2100 developed by the Intergovernmental Panel on Climate Change. They are based on models that describe economic development trajectories, taking into account key indicators such as GDP growth, economic inequality, social development, the degree of openness of the world, such as openness to trade or conflict in the international environment, values, including attitudes to nature. Together they determine the amount of greenhouse gas emissions, the level of technological development as well as the capacity of countries to take mitigation and adaptation measures. O'Neill B.C., Kriegler E., Ebi K.L., Kemp-Benedict E., Riahi K., Rothman D.S., et al. The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century // Global Environmental Change. 2017. Vol. 42. P. 170.

78 Report on climate features on the territory of the Russian Federation for 2020. Roshydromet. Moscow, 2021.

centers. According to Roshydromet⁷⁹, 60% of the infrastructure in cities such as Igarka, Dickson and Khatanga have already been deformed; in Dudinka, it is 55%; in Pevek, 50%; and on the Taimyr Peninsula, 100%⁸⁰. According to Roshydromet estimates, the permafrost pipelines and other structures usually built on pile foundations have already lost 20-40% of their carrying capacity⁸¹, while Russian building codes require a carrying capacity reserve of at least 40%. In the next decade this requirement will not be met over most of the permafrost area and by mid-century over the entire permafrost area⁸².

By the middle of the 21st century, many critical facilities will be at high risk of permafrost melting, including 1,590 km of the Eastern Siberia-Pacific Pipeline, 1,260 km of pipelines in the Yamal-Nenets Autonomous District, and 280 km of the Obskaya-Bovanenkovo railway. Large industrial cities such as Vorkuta and Novy Urengoy will also fall into the zone of greatest risk. Along with them is the Bilibino nuclear power plant and the transmission lines around it, which provide power to neighbouring mining enterprises⁸³.

It is difficult to provide an accurate estimate of the long-term economic damage caused by permafrost melting, but it is likely to be very high. According to Roshydromet estimates⁸⁴, maintenance and repair of infrastructure, its reinforcement and protection against permafrost melting costs 55 billion rubles annually. The Russian Academy of Sciences estimates that a 25% reduction in permafrost by 2080 would result in a \$250 billion loss to Russia because of infrastructure damage⁸⁵. Alexander Kozlov, head of the Russian Ministry of Natural Resources and Environment, said that in 23% of cases, the degradation of permafrost results in the failure of technical systems, and in 29% of cases it causes a reduction in hydrocarbon production. It also complicates the construction of railways and highways and deforms more than 40% of infrastructure in permafrost areas. Altogether the damage from degradation of permafrost could reach about 5 trillion rubles by 2050⁸⁶. According to some estimates, by the middle of the 21st century, damage to infrastructure from melting permafrost alone could cost Russia up to 9 trillion rubles⁸⁷.

79 Third Assessment Report on Climate Change and its Impacts on the Territory of the Russian Federation. General summary. - St. Petersburg: Science-Intensive Technologies, 2022. P. 16.

80 Ibid.

81 Report on climate features on the territory of the Russian Federation for 2020. Roshydromet. Moscow, 2021. P. 62.

82 Ibid.

83 Ibid.

84 Third Assessment Report on Climate Change and its Impacts on the Territory of the Russian Federation. General summary. - St. Petersburg: Science-Intensive Technologies, 2022. P. 37.

85 The Adaptation Game — Russia and Climate Change // IFRI, 2021. [Electronic resource].

URL: https://www.ifri.org/sites/default/files/atoms/files/bobolo_russia_climate_change_2021.pdf (accessed: 12.11.2022)

86 Monitor permafrost: what threatens the temperature increase in the Arctic // RBC, 12/29/2021. [Electronic resource].

URL: <https://plus.rbc.ru/news/6177d7ac7a8aa908e42dfb43> (accessed: 12.11.2022)

87 Damage from permafrost thawing may amount to 9 trillion rubles by 2050 // Rossiyskaya Gazeta, 2020. . [Electronic resource].

URL: <https://rg.ru/2020/11/24/ushcherb-ot-taianiiavechnoj-merzloty-mozhet-sostavit-do-9-trln-rublej-k-2050-godu.html> (accessed: 12.11.2022)

The potential economic losses from thawing permafrost vary by region and are significantly higher in the scenarios with the highest temperature increases. For instance, in the SSP5-8.5 scenario, the costs of permafrost reduction and permafrost deformation could reach \$105 billion by the middle of the 21st century, while the total value of fixed infrastructure assets could reach \$301.1 billion⁸⁸. The value of infrastructure fixed assets includes the total value of immovable assets, such as residential buildings, social facilities (hospitals, schools, universities, airports, etc.), critical infrastructure (roads, bridges, pipelines, etc.).

Estimates of the cost of infrastructure exposed to thawing permafrost show that 53.8% of residential buildings, 19.7% of social facilities and 18.8% of infrastructure located on permafrost soils need to be replaced. The biggest infrastructure rehabilitation costs will be in the Yamal-Nenets Autonomous District and Sakha Republic, which could reach \$52.3 billion and \$21.3 billion, respectively. Costs will also be high in the Komi Republic, Nenets Autonomous District and Krasnoyarsk Territory, ranging from \$8.5 billion to \$10 billion.

Climate change has a negative impact on the sustainability of transport infrastructure located in the permafrost zone: the capital costs to strengthen and ensure the sustainability of the road infrastructure network in 2020-2050 may range from 422.68 billion rubles to 864.81 billion rubles annually⁸⁹. The highest costs will be in the Chukotka Autonomous District, the Sakha Republic, and the Magadan Region. Other estimates show that the total cost of maintenance of road infrastructure due to permafrost degradation in the northern regions of Russia will range from \$7.0 billion to \$14.4 billion by 2050 and the cost of replacement of residential infrastructure could be as high as \$0.5-0.6 billion annually during 2020-2050⁹⁰. A clear example of the lack of proper climate risk management in terms of strengthening permafrost soils and tightening construction standards and requirements was the accident at TPP-3 in Norilsk in 2020, caused in part by melting ground and collapse of supporting pylons (see section 3.4.). To ensure the stable functioning of infrastructure facilities additional investments are required, which in monetary terms could amount to 1% of Western Siberia's GRP⁹¹.

The possibility of developing transport infrastructure in the region is affected not only by the degradation of the permafrost, but also by the shorter duration of the winter season. Most transport in the region is carried out on "winter roads" or ice roads, which are laid on frozen rivers or lakes. According to Roshydromet data⁹², the ice-free period on rivers in the Polar region has been

88 Streletskiy D.A., Suter L.J., Shiklomanov N.I., Porfiriev B.N., Eliseev D.O. Assessment of climate change impacts on buildings, structures and infrastructure in the Russian regions on permafrost // Environmental research letters. 2019. Vol. 14. № 2. P. 1–15.

89 Porfiriev B., Eliseev D., Streletskiy D. Op. cit. P. 1236.

90 Hjort J., Streletskiy D., Doré G., Wu Q., Bjella K., Luoto M. Impacts of permafrost degradation on infrastructure // Nature Reviews Earth & Environment. 2022. Vol. 3. № 1. P. 25.

91 Streletskiy D.A., Suter L.J., Shiklomanov N.I., Porfiriev B.N., Eliseev D.O. Op. cit. P.10.

92 Impacts of Changing Climate in Permafrost Regions: the Russian Perspective. Summary report FCO UK-Russia Project "Assessing and communicating country level climate impacts in Russia and the UK" // Institute of Global Climate and Ecology of Federal Service for Hydrometeorology and Environmental Monitoring and Russian Academy of Science, 2016. [Electronic resource].

URL: http://downloads.igce.ru/international_activity/Output_2_Climate%20Impacts_FINAL_16_March_17.pdf (accessed: 12.11.2022)

decreasing at an average rate of 12 days/100 years since the 1970s, while in the Arctic the rate is 4 times higher. Over the past 30 years, the wintering season has fallen by 7-10 days; the most severe reductions are in the northern Chukotka Autonomous District, the southern Yamal-Nenets Autonomous District, and the eastern Nenets Autonomous District. In some localities with a total population of 264,000, winter road service life decreased by 4%, or 1,015 days, between 1970 and 2000. By the middle of the 21st century, travel time on ice and continental roads will be 10-15% shorter⁹³, and by the end of the century, in the most aggressive RCP8.5⁹⁴ greenhouse gas emission scenario, up to 40% shorter than at present. Permafrost thawing could also have a negative impact on oil and gas operations: for example, deformation of oil wells could result in a loss of 10-20% of oil production⁹⁵.

Finally, thawing permafrost can lead to the release of many hazardous viruses, substances, especially radioactive materials, as in the Soviet Union the Arctic served as a storage site for huge amounts of radioactive waste (see section 3.4.)⁹⁶. Thawing of permafrost also threatens public health risks, as many dangerous pathogens (anthrax, smallpox, plague), previously trapped in the permafrost, can enter groundwater and the air. An increase in surface air temperature and thawing of permafrost at burial sites pose a particular danger. Some toxic wastes, such as those containing mercury, are also seeping into Arctic rivers and can be ingested by humans through the consumption of fish. These and many other risks of melting permafrost can lead to an increase in health care costs of up to 3% of the total annual health care budget⁹⁷.

Despite gradual progress in the accumulation of knowledge about the geophysical climate processes occurring in the region, it has not yet been possible to build a comprehensive system for assessing the dynamics and consequences of climate change due to the lack of sufficient panel data, the low density of permafrost thawing measurement networks and the network of hydrometeorological stations. The lack of a well-developed monitoring system is the main reason for the fragmentation and ambiguity of estimates of the speed and scale of climate change in the northern regions of Russia. Estimates of possible economic damage due to climate change are even less certain. This raises the question of improving the quality of integrated assessment models, which so far cannot account for the full range of climatic changes characteristic of the Arctic. This lack of models, among other things, prevents the development of a systematic Arctic policy that takes into account all the potential climate change and related economic losses.

93 Gädeke A. et al. Climate change reduces winter overland travel across the Pan-Arctic even under low-end global warming scenarios // *Environmental Research Letters*, 2021. № 16. 024049. DOI 10.1088/1748-9326/abdcf2

94 Representative Concentration Pathway (RCP) are greenhouse gas emission concentration scenarios developed by the Intergovernmental Panel on Climate Change. They describe different trajectories of climate change depending on the growth of greenhouse gas emissions. Meinshausen, M., S. J. Smith, K. V. Calvin, J. S. Daniel, M. L. T. Kainuma, J.-F. Lamarque, et al. The RCP Greenhouse Gas Concentrations and their Extension from 1765 to 2300 // *Climatic Change*. 2011. № 109. P. 216. DOI: 10.1007/s10584-011-0156-z

95 Report on climate features on the territory of the Russian Federation for 2020. *Roshydromet*. Moscow, 2021.

96 Miner K.R. et al. Op. cit. P. 57.

97 Revich B.A., Eliseev D.O., Shaposhnikov D.A. Risks for Public Health and Social Infrastructure in Russian Arctic under Climate Change and Permafrost Degradation // *Atmosphere*. 2022. Vol. 13. № 4. P. 532. <https://doi.org/10.3390/atmos13040532>

3.3. Methane Emissions in the Arctic Region

Methane as a Greenhouse Gas

Methane (CH₄) is the second greenhouse gas after carbon dioxide in terms of emissions in the atmosphere⁹⁸. It accounts for about 20% of the total volume of greenhouse gases. Methane belongs to the group of so-called short-lived climate forcers⁹⁹. After emission methane stays in the atmosphere for only 9-12 years, while carbon dioxide has a lifetime of 410 years¹⁰⁰. However, methane has a stronger greenhouse effect: on the horizon of 20 years methane is about 80 times stronger than carbon dioxide, on the horizon of 100 years – about 30 times¹⁰¹.

Methane emissions are caused both by natural processes and human activity (fig. 4). In nature methane is released due to permafrost thawing via decomposition of organic matter or methane hydrate. Methane hydrate is a solid methane deposit found in soils, as well as on the bottom and in the ocean shelf. Anthropogenic methane emissions occur during the extraction and burning of fossil and biofuels, in agriculture and livestock farming, as well as on landfills¹⁰². Anthropogenic emissions account for about 60% of all methane emissions¹⁰³.

Methane emissions in the Arctic countries amount to approximately 20 Tg/year. The largest volume of emissions is produced by Eastern Eurasia, followed by North America and Western Eurasia¹⁰⁴. In Eastern and Western Eurasia, natural and anthropogenic emissions are approximately equal, but in North America, more than half of methane emissions occur in wetlands.

98 Importance of Methane // U.S. Environmental Protection Agency. [Electronic resource]. URL: <https://www.epa.gov/gmi/importance-methane> (accessed 18.06.2023)

99 Except for methane this group includes black carbon, ground-level ozone (tropospheric ozone) and hydrofluorocarbons (HFCs). See 3rd Summary of Progress and Recommendations // Expert Group on Black Carbon and Methane. 2021. [Electronic resource]. URL: <http://hdl.handle.net/11374/2610> (accessed 18.06.2023)

100 Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report // IPCC, 2021. Cambridge: Cambridge University Press. doi:10.1017/9781009157896. P. 824.

101 Ibid. P. 1017.

102 Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change // IPCC, 2007. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. P. 539.

103 Methane // The Climate and Clean Air Coalition. [Electronic resource]. URL: <https://www.ccacoalition.org/en/slcps/methane> (accessed 18.06.2023)

104 Wittig S. et al. Estimating methane emissions in the Arctic nations using surface observations from 2008 to 2019 // Atmospheric Chemistry and Physics. 2023. Vol. 23. № 11. P. 6460.

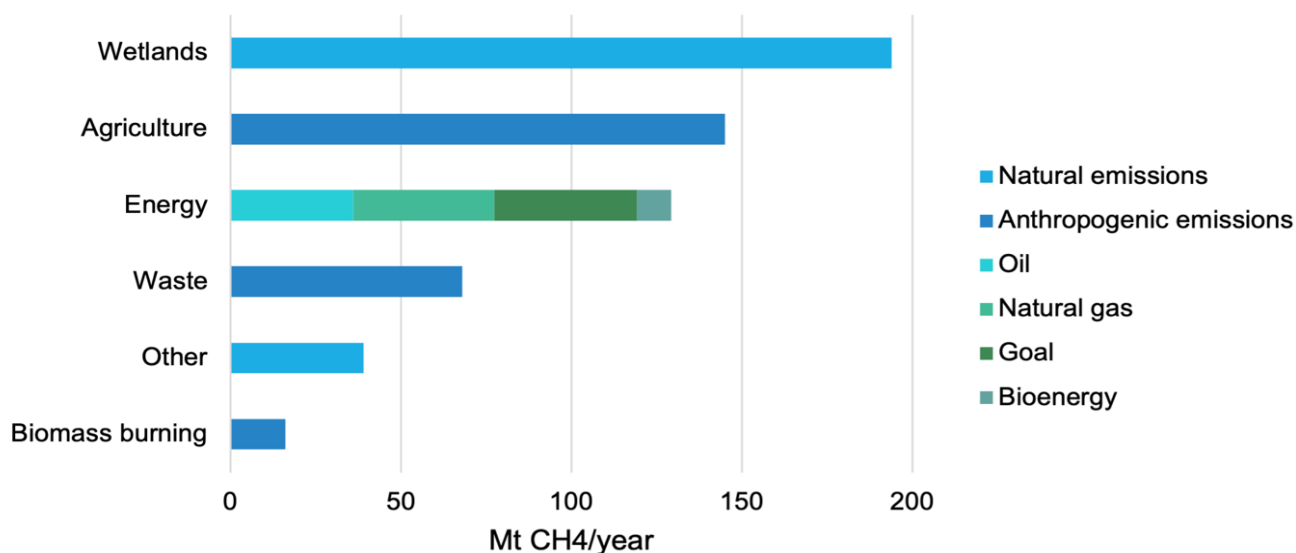


Figure 4 – Sources of methane emissions, annual average during 2008–2017

Source: IEA from the Global Methane Budget¹⁰⁵

Natural Methane Emissions in the Arctic

Methane emissions from natural sources are associated with the effects of thawing permafrost: (1) decomposition of methane hydrate in permafrost deposits on land and in the ocean, (2) anabiotic processes in wetlands. There are different estimates for the global volume of methane hydrate as values range from 455 to 2500 billion tons of carbon¹⁰⁶. Other studies show that onshore permafrost contains 1% of the world’s methane hydrate, while 3.5% are located in upper continental slopes¹⁰⁷. About 95% of hydrates are in deep ocean stability zone. However, methane hydrate is subject to decomposition only in soil permafrost regions and shallow shelves due to the effect of temperature increase.

105 Methane Tracker 2021 // IEA. 2021. Paris. [Electronic resource]. URL: <https://www.iea.org/reports/methane-tracker-2021> (accessed 18.06.2023)

106 AMAP Assessment 2015: Methane as an Arctic climate forcer // Arctic Council. [Electronic resource]. URL: <http://hdl.handle.net/11374/1469> (accessed 18.06.2023)

107 Ruppel C. D., Kessler J. D. The interaction of climate change and methane hydrates // Reviews of Geophysics. 2017. Vol. 55. № 1. P. 134.



A large number of methane hydrate deposits are located offshore on the north of Eastern Siberia¹⁰⁸. With an increase in ocean temperature and degradation of permafrost, methane is released from hydrate and rises to the surface in the form of threads of bubbles (so-called “bubble methane”). The release of a large volume of methane is called the “boiling water” effect. This phenomenon was observed on the surface of the East Siberian Sea and the Laptev Sea¹⁰⁹.

In places with a gas-saturated layer, there is a risk of a “methane bomb”. At a depth of about 200 m, methane hydrates are located in the permafrost¹¹⁰. If they are destabilized, they can explode and form a crater. For example, such a crater was discovered in Yamal in 2014¹¹¹. In addition, melting of permafrost result in decomposition of organic matter, which is also a natural source of methane.

However, according to the IPCC estimates, it is extremely unlikely that methane emissions from hydrates will significantly affect climate change in the coming centuries¹¹². Most of the methane deposits are located deep in the ocean, where the temperature is fairly stable¹¹³. As for anabolic processes in permafrost, the IPCC also assesses their impact on temperature rise as more important, but not critical¹¹⁴.

Anthropogenic Methane Emissions in the Arctic

Anthropogenic methane emissions in the region are associated with energy sector: extraction, transportation, and distribution of fossil fuels. In total, methane leaks and associated petroleum gas (APG) combustion account for 45% of greenhouse gas emissions in the oil and gas sector¹¹⁵.

During oil extraction, methane leaks occur as a result of APG combustion. Basically, during APG combustion, carbon dioxide is released, the gas which is less dangerous in terms of global warming potential than methane. However, not all of the APG is burnt – some methane still enters the atmosphere. In 2010-2019, the volume of APG in the Russian Arctic increased from 9.1 to 27.4 billion cubic meters¹¹⁶. Especially the volumes of APG increased at the fields of the Salym and Shapshinskaya groups (Khanty-Mansiysk) and Novoportovskoye (Yamal). The Arctic Council project

108 Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change // IPCC, 2013. Cambridge: Cambridge University Press. P. 531.

109 Sergienko V. I. et al. The degradation of submarine permafrost and the destruction of hydrates on the shelf of east arctic seas as a potential cause of the “Methane Catastrophe”: some results of integrated studies in 2011 // Doklady Earth Sciences. 2012. Vol. 146. № 1. P. 1133.

110 Ruppel C. D., Kessler J. D. The interaction of climate change and methane hydrates // Reviews of Geophysics. 2017. Vol. 55. № 1. P. 152.

111 Arzhanov M. M., Mokhov I. I., Denisov S. N. Impact of regional climatic change on the stability of relic gas hydrates // Doklady Earth Sciences. 2016. Vol. 468. № 2. P. 617.

112 Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report // IPCC, 2021. Cambridge: Cambridge University Press. doi:10.1017/9781009157896. P. 824.

113 Ruppel C. D., Kessler J. D. Op. cit. P. 130.

114 Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report // IPCC, 2021. Cambridge: Cambridge University Press. doi:10.1017/9781009157896. P. 773.

115 Decarbonization in Oil and Gas Industry: International Experience and Russian Priorities // Moscow School of Management SKOLKOVO. March 2021. [Electronic resource]. URL: https://energy.skolkovo.ru/downloads/documents/SEneC/Research/SKOLKOVO_EneC_Decarbonization_of_oil_and_gas_RU_22032021.pdf (accessed: 20.06.2023)

116 Significant Economic and Environmental Gains Can Be Achieved by Applying Best Available Technology in the Oil Sector in the Arctic // Arctic Council. 25 June 2020. [Electronic resource]. URL: <https://arctic-council.org/news/best-available-technology-in-the-oil-sector-in-the-arctic/> (accessed: 20.06.2023)

assessed the environmental impact of APG combustion in the region and the possibilities of using the best available technologies and practices¹¹⁷. At the end of 2018, Gazpromneft implemented a project of APG injection into underground horizons at the Novoportovskoye field. APG injection allows both to avoid emissions and increase oil production.

While methane emissions associated with oil industry come from exploration and production, in the case of gas, methane also enters the atmosphere during transportation and distribution. This is due to the fact that natural gas is mostly transported in the form of methane. Leaks on gas pipelines occur due to equipment failures and depressurization during repair work¹¹⁸. There is a problem of checking the tightness of Arctic gas pipelines at the bottom of the ocean shelf since the ocean is covered with ice¹¹⁹. For example, leaks on pipelines of the American company Hilcorp occurred in Alaska in 2014 for several months as a result of pipeline damage¹²⁰. The company managed to avoid fines, but according to the results of the investigation, it finally had to repair pipelines.

Since 2016, the United States has had restrictions on methane emissions from drilling new wells, laying pipelines and creating storage facilities; companies were also required to identify and eliminate methane leaks¹²¹. During the presidency of Donald Trump, the requirements for eliminating methane leaks were relaxed. For instance, according to Fugitive Emissions Requirements, leaks can be eliminated not immediately after an accident, but during a planned shutdown or within two years. According to another amendment, inspections on new or renewed wells can be carried out within 6, not 2 months.

International Cooperation on Methane Emissions in the Arctic

There are two international institutions that regulate methane emissions: Climate and Clean Air Coalition (CCAC) and Global Methane Initiative (GMI)¹²². The Climate and Clean Air Coalition brings together governments, international organizations, companies, research institutes and civil society institutions on a voluntary basis. The Global Methane Initiative is also a voluntary partnership to reduce methane emissions. The Arctic states – Canada, Finland, Norway, Russia, and the USA – are members of both organizations; Sweden and Denmark are only part of the Coalition.

International cooperation on environmental protection and sustainable development in the

117 Ibid.

118 SKOLKOVO. March 2021. [Electronic resource]. URL: https://energy.skolkovo.ru/downloads/documents/SEneC/Research/SKOLKOVO_EneC_Decarbonization_of_oil_and_gas_RU_22032021.pdf (accessed: 20.06.2023)

119 Paulin M., Hudon T. Status of Arctic Pipelines Standards and Technology (Final Presentation) // INTECSEA WorleyParsons Group. 13.02. 2018. [Electronic resource]. URL: <https://www.bsee.gov/sites/bsee.gov/files/research-reports//791ab.pdf> (accessed: 20.06.2023)

Juuly M. et al. Computational Fluid Dynamics Modeling of Subsea Pipeline Leaks in Arctic Conditions // Paper presented at the Arctic Technology Conference, St. John's, Newfoundland and Labrador, Canada, October 2016. doi: <https://doi.org/10.4043/27417-MS>

120 Hilcorp Natural Gas Leak from 8-Inch Pipeline // Division of Spill Prevention and Response, 2017. [Electronic resource]. URL: <https://dec.alaska.gov/spar/ppr/spill-information/response/2017/04-hilcorp/> (accessed: 20.06.2023)

121 Actions and Notices about Oil and Natural Gas Air Pollution Standards // U.S. Environmental Protection Agency. [Electronic resource]. URL: <https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/actions-and-notices-about-oil-and-natural#regactions> (accessed: 20.06.2023)

122 3rd Summary of Progress and Recommendations // Expert Group on Black Carbon and Methane. 2021. [Electronic resource]. URL: <http://hdl.handle.net/11374/2610> (accessed: 20.06.2023)

Arctic is carried out within the framework of the Arctic Council, established in 1996. The regime of Arctic pipelines is fixed by Arctic Offshore Oil and Gas Guidelines in accordance with the Arctic Environmental Protection Strategy. The Guidelines set out the basic principles: Precautionary Approach, Polluter Pays Principle, Sustainable Development¹²³.

At the Conference of the Parties on Climate Change in Glasgow in 2021, United States initiated the Global Methane Pledge. The Pledge was signed by 150 countries, including the member countries of the Arctic Council, except for Russia¹²⁴. China and India, the observer countries of the Arctic Council, also did not sign the agreement.

3.4. Environmental Problems in the Arctic

The value of Arctic ecosystems is determined by their fragility and increased vulnerability to climate change, the importance for regional indigenous populations, whose livelihoods are directly related to the consumption and use of biological resources. Environmental degradation at the present stage and the consequences of economic, military, and scientific activities in the past are a fundamental challenge for sustainable development of the Arctic zone of the Russian Federation.

Nuclear Contamination

The creation of the Soviet atomic bomb was a turning point in the history of humankind and the formation of a system of international relations. A large number of tests, some of which took place in the Arctic, were associated with the development of the nuclear triad. On the Novaya Zemlya archipelago, 132 tests of various types, mostly atmospheric, were carried out. Because of the release of a large number of radionuclides into the atmosphere, the Kara and Barents Seas were polluted¹²⁵. In 2017, scientists from the Russian Geological Research Institute (VSEGEI) and the FSBI "VNIIOkeangeologia" drew up a scheme of man-made radioactive contamination of the Russian part of the Arctic¹²⁶. The maximum levels of radiocesium contamination have been established in the southern (due to nuclear testing) and eastern (due to nuclear waste disposal) parts of the Novaya Zemlya archipelago. Pollution was also recorded in the area of the Yenisei River valley, which was caused by mining and chemical plant in the city of Zheleznogorsk in the Krasnoyarsk Territory. According to numerous studies of the Russian Academy of Sciences, the pollution of the Yenisei River is characterized by a large-scale nature. Scientists noted the repeated removal of highly active particles of radioactive fuel outside the industrial zone, a high level of technogenic radionuclides within forest ecosystems¹²⁷. Now, one of the three centers for deep injection of liquid radioactive waste is located in Zheleznogorsk. This construction was put into operation in 1967, the volume of buried waste is more than 6.5 million m³¹²⁸.

123 Bunik I. V. International Legal Peculiarities of Pipeline Operation in the Arctic (in Russian) // Moscow Journal of International Law.. 2022. № 5. P. 179.

124 Global Methane Pledge. [Electronic resource]. URL: <https://www.globalmethanepledge.org/> (accessed: 20.06.2023)

125 Sarkisov A. A. On the Elimination of Radioactive Pollution in the Arctic Region // Bulletin of the Russian Academy of Sciences. 2019. Vol. 89. №. 2. P. 114.

126 Grigoryev A.G., Nesterova E.N., Neevin I.A., Kholmyansky M.A. Scheme of Anthropogenic Radioactive Pollution in the Russian Arctic (in Russian) // Problems of the Arctic and Antarctic.. 2017. Vol. 4. P.18.

127 Bolsunovsky A.Y. Radioecological studies of the Yenisei River floodplain in the zone of influence of the Mining-Chemical Combine (Zheleznogorsk) (in Russian) .2012.

128 Barinov A.S., Tkachenko A.V., Speshilov S.L. Depth Pumping of Liquid Radioactive Waste (In Russian). [Electronic resource]. URL: http://www.atomeco.org/mediafiles/u/files/Prezentetion_31_10_2013/Speshilov.pdf (accessed: 20.06.2023)

The development of the nuclear industry, weapons and transport has resulted in a large amount of solid and liquid nuclear waste. During the Soviet years, it was considered normal and safe practice all over the world to bury nuclear waste on the ocean floor. Thus, about 17 thousand containers with solid radioactive waste were buried in the Kara Sea, as well as radioactive structures and blocks, reactor compartments and ships with solid nuclear waste on board. At the moment, flooded facilities with spent nuclear fuel (SNF) pose the greatest danger in virtue of the threat of its leakage and the rapid spread of radionuclides through ecosystems due to flows. In addition, the operation of facilities such as nuclear submarines or nuclear icebreakers increases the risks for the environment and humans owing to possible accidents. In particular, in the 20th century, the Komsomolets nuclear submarine with plutonium warheads on board sank in the Norwegian Sea, and the B-159 nuclear submarine sank in the Barents Sea. Until now, they are in the marine environment without protective contours.

The operation of the nuclear fleet during the Soviet era has led to extensive local radioactive contamination in the places of basing, maintenance and repair of ships and nuclear submarines. The greatest pollution was found at military bases in the village of Gremikha and Andreeva Bay, where spent nuclear fuel and radioactive waste are stored. In 1982, the fuel pool was damaged in Andreeva Bay, and radioactive water began to enter the Barents Sea. At the moment, Rosatom State Corporation is carrying out work to reduce radioactivity and improve the safety of spent nuclear fuel storage facilities¹²⁹.

In the 1970s, liquid nuclear waste discharges from factories in the UK and France resulted in additional contamination of the southeastern part of the Barents Sea, as radionuclides migrated with the waters flows¹³⁰. Moreover, due to the accident at the Chernobyl nuclear power plant, there was an episodic fallout of radiocesium in the Arkhangelsk and Murmansk regions.

At the present stage, Russia has the largest nuclear fleet in the world, new ships are put into operation, including nuclear submarines, which underlines the relevance of nuclear waste disposal. There is a fight against pollution of the Soviet period: the disposal of radioactive objects and the processing of spent nuclear fuel. However, a large amount of buried radioactive waste in the Kara Sea poses a threat to the environment and may hinder the implementation of oil and gas projects. There is a risk of SNF being released into the marine environment, which could lead to the spread of radionuclides across the Arctic Ocean.

Industrial Pollution and Waste

The availability of resources in the Arctic has led to the emergence of a large number of industrial enterprises. All Russian titanium, apatite ores, zirconium, platinum (98%) and nickel (97%) are mined in the Arctic zone¹³¹. The Russian part of the Arctic has large reserves of copper, diamonds, cobalt, zinc, palladium, and other metals.

129 Purification follows: "Rosatom to continue eliminating nuclear legacy in the Arctic // Strana Rosatom. [Electronic resource]. URL: <https://strana-rosatom.ru/2022/06/24/ochishhenie-sleduet-rosatom-prodolzhi/> (accessed: 20.06.2023)

130 Sarkisov A.A. Op. cit. 117.

131 Artic Russia Newsletter. 2019. [Electronic resource]. URL: <https://arctic-russia.ru/upload/Arctic-Bulletin.pdf> (accessed: 20.06.2023)

There are many old industrial regions in the Russian Arctic. These are the territories of the Kola and Taimyr Peninsulas with the most critical situation is Norilsk or Monchegorsk because of huge historical air pollution and environmental degradation during the development of natural resources. According to Rosprirodnadzor, in 2022, air pollution in Norilsk amounted to 1.8 million tons – 10.5% of the total dirty pollution in Russia¹³², the city was ranked as the dirtiest in the Russian Federation.

Mining is associated with a large amount of waste, such as overburden and enclosing rocks, enrichment tailings, while open-pit mining pose changes in natural landscape¹³³. For example, in 2022, the Kola Mining and Metallurgical Company (a subsidiary of PJSC MMC Norilsk Nickel) produced 7 million tons of waste with 4 million tons disposed of¹³⁴. Waste storage requires large areas and increases anthropogenic load on ecosystems.

The metallurgical and oil and gas production also releases a large number of acid-forming gases (sulfur oxide, nitrogen oxides), copper and nickel ions, and other metals, which negatively affects the ecosystems of the Arctic zone. Emissions of acid-forming pollutants cause acidification of soils and surface waters, acid precipitation, desiccation, and reduction of forest vegetation¹³⁵, and shorten the quality of life of the local population. Though metal pollution is local (within tens of kilometers from metallurgical industries), it is detrimental to water and forest ecosystems. Fauna degradation is observed in the reservoirs, where the water used by the production facilities is discharged. In general, the accumulation of metals causes the death of lichens and bryophytes, the pressure on microbial communities increases, the feeding regime of forests is disrupted leading to their degradation¹³⁶.

Finally, after the collapse of the Soviet Union a huge number of research and industrial facilities, military infrastructure was abandoned. At the present stage, the Arctic zone of Russia is polluted with a large amount of industrial and construction waste and barrels of oil products. Due to the economic crisis, many fishing boats have been abandoned, which have fallen into disrepair over time and require disposal. The Clean Arctic federal project is currently being implemented in the Arctic zone, which is aimed at combating pollution through volunteer activities.

Norilsk Nickel is implementing the Sulfur Program, which provides for the utilization of sulfur dioxide at the Nadezhda Metallurgical and Copper Plants (part of the company's Polar Division). This initiative will significantly reduce sulfur oxide emissions in the Norilsk industrial region and will benefit human health and local ecosystems. Since 2018, the city of Norilsk has also been part of the Clean Air federal project aimed at cutting pollutant emissions.

132 Norilsk ranked first in the rating of air-polluting cities in Russia in 2022 // Interfax, 05.04.2023. [Electronic resource].

URL: <https://www.interfax.ru/russia/894488> (accessed: 20.06.2023)

133 Sokolov Y. I. The Arctic: to the Problem of Accumulated Environmental Damage // All-Russian Research Institute for Civil Defense and Emergencies of the Russian Ministry for Emergency Situations. 2013. P. 20.

134 MMC Norilsk Nickel Sustainability Report 2022 // Norilsk Nickel, 2022. [Electronic resource].

URL: https://www.nornickel.ru/upload/files/ru/investors/reports-and-results/annual-reports/nn_human_rights_rus.pdf (accessed: 20.06.2023)

135 How Scientists Save Arctic Ecology // Ministry of Science and Higher Education of the Russian Federation. [Electronic resource].

URL: <https://minobrnauki.gov.ru/press-center/news/novosti-ministerstva/25485/> (accessed: 20.06.2023)

136 Gordeev V. V. et al. Diagnostic analysis of environmental conditions in the Arctic zone of the Russian Federation (in Russian), 2011.

Oil Spills

Oil and gas production mainly takes place in the west of the Arctic zone and poses significant risks for the environment. These risks appear not only in the form of pollutant emissions, infrastructure construction, but also in the form of oil spills. Unlike the release of harmful substances or the spread of radionuclides, which have a cumulative effect, oil spills cause immediate and irreparable damage to local ecosystems.

The Russian Arctic has both major spills and minor accidents that are difficult to monitor because of the region's large size. In 1994, an accident occurred in the Komi Republic related to the partial destruction of an oil pipeline, which led to soil and water pollution with negative implications for animals and plants. One of the most famous accidents was the spill in 2020 of more than 20 thousand tons of diesel fuel near the CHPP-3 of the Norilsk-Taimyr Energy Company (Norilsk Nickel). This ecological catastrophe caused not only huge damage to local ecosystems, but also endangered the ecosystems of the Arctic Ocean. In 2021, after an oil pipeline break on the Kolva River in the Komi Republic, this threat was realized again because of the oil-containing liquid flowing into a river running into the Arctic Ocean.

The Soviet period of Arctic exploration also left a legacy not only in the form of local fuel spills at abandoned infrastructure centers, but also mothballed oil wells, the condition of which is not constantly or periodically monitored. The elimination of oil pollution is crucial for the sustainable development of the Arctic. From 2019 to 2022, The Russian Arctic National Park and the oil company Rosneft conducted studies on the degree of oil pollution in areas of Franz Josef Land. Scientists came to the conclusion about the low rate of natural self-purification of soils.

Finally, the increase in oil and natural gas production raises the question of logistics development. A boom in the number of shipments will naturally pile up the risks for the environment owing to possible accidents on tankers. An example is the spill of oil products near the city of Nevelsk, Sakhalin Region, which transpired as the transporting ship ran aground.

Development of the Northern Sea Route

The creation of infrastructure on various sections of the Northern Sea Route is one of the strategic goals of the Russian state. An extension of traffic along this route and building of infrastructure facilities will not only provide the inhabitants of the Arctic zone with various goods, but also increase the export of Arctic natural resources. In particular, it is planned to build a terminal for liquefied natural gas and gas condensate "Utrenny", an oil-loading terminal "Bukhta Sever", a coal terminal "Yenisei", various transport and logistic premises.

A gain in cargo traffic along the Northern Sea Route, though serves as one of the indicators of the effectiveness of policy measures, is a negative factor for environmental stability. The commissioning of new ships, including nuclear-powered icebreakers, is an additional risk not only because of possible accidents, but also because of pollutant emissions. One remedy for the problem of pollutant emissions from shipping is to switch to LNG or more environmentally friendly fuels, for example, with a low sulfur content.

The improvement of the infrastructure of the Northern Sea Route is a driver of rising pressure on ecosystems at all stages – from construction to exploitation. In fact, this project requires the entry into service of not only new transport and logistics facilities, but also infrastructure on the continent (railways, stations, bridges, enterprises). This will in turn lead to growing pressure on ecosystems, an increase in emissions of pollutants and waste from industrial activities.

Household Waste

Since there are a large number of cities and settlements on the territory of the Russian part of the Arctic, the issue of disposal and handling of domestic waste is acute. The greatest challenges are observed in remote settlements, from where it is extremely unreliable to take out garbage, not only due to high costs, but also because of the complexity of the process itself.

There are a large number of landfills in the Arctic zone, some of which are completely filled, which requires the commissioning of new objects. Due to the lack of a recycling or disposal system, some regions are forced to give permission for the creation of new landfills. In 2021, the authorities of the Arkhangelsk region decided to construct three waste sorting complexes and 7 landfills, as one of the 3 main landfills was closed, and two were overcrowded¹³⁷. According to the governor, in 2022, more than 10 million tons of household waste have been accumulated in the Arkhangelsk region.

Building a waste recycling system in the Arctic could mitigate household pollution problems. There is a positive trend: in the Yamalo-Nenets Autonomous Okrug, it is planned to put into operation entities for processing, recycling, and disposal of waste in the short term (2024–2025). The federal authorities are also developing a strategy for handling domestic waste in the Arctic zone. Pilot projects are being introduced to reduce the amount of waste.

137 <https://29.ru/text/ecology/2021/02/17/69772406/>

3.5. Implementation of Circular Economy Principles in the Arctic Region

Relevance of Circular Economy for the Russian Arctic

Circular Economy (CE) model in Russia is fully regarded as a powerful driver for innovative development, including in the Arctic region. The CE model is an economic concept for sustainable waste management¹³⁸. In fact, CE corresponds to SDG 12 – Responsible Consumption and Production, but can also be understood in a broader sense, as it contributes to all SDGs. In addition, there are no clear indicators for measuring CE in practice. In general, the CE model assumes the reduction, reuse, recovery, and recycling of waste to support the SDGs. As Nikonorov et al. point out¹³⁹, in the Arctic zone the CE model is primarily linked to the “blue economy” concept that takes into account exploitation, conservation and regeneration of the marine environment for socio-economic development (SDG 14 – Life Below Water).

Several strategic steps have already been taken at the federal level to develop the CE model in Russia, including the National Project “Ecology”, the federal projects “Circular Economy” and “General Cleaning”. The projects are aimed at eliminating unauthorized dumps and the most dangerous objects of accumulated environmental damage; rehabilitating some polluted territories (the Volga River, Lake Baikal, etc.); creating a legal framework and new infrastructure to deal with waste accumulation and disposal¹⁴⁰.

These programmes are also relevant for the Arctic zone, which development is among the priorities of the Russian Federation state policy¹⁴¹. Until 2013, the environmental situation in several Arctic areas was assessed as catastrophic¹⁴². Up to 1 billion tons of industrial and domestic waste was generated in the region each year. For instance, during several years, more than 750 million tons of waste was accumulated as a result of the Khibinsk deposits exploitation, more than 1 billion tons – in the Norilsk industrial district, and more than 6 billion tons of crushed rock mass – on the Kola Peninsula. At the same time, as noted, for instance, in a report of the Federation Council, it is possible to exploit new accessible mineral deposits, including gas and oil, in the Arctic zone¹⁴³. The region contains about 22% of the world’s undiscovered fossil fuel deposits (13% oil, 30% natural gas, 20% gas condensate).

In addition to mining, the waste situation is due to numerous Soviet military bases located in the region. Also, a large amount of highly hazardous nuclear waste from nuclear power plants

138 Kalioujny B. Le modèle de l'économie circulaire dans les systèmes socio-économiques de la filière-bois : le cas de l'oblast de Tomsk // Université Bourgogne Franche-Comté; Université polytechnique de Tomsk (Russie). 2021.

139 “Blue Economy” and the problems of the Arctic development: collective monograph / edited by S.M. Nikonorov, K.V. Papenov, K.S. Sitkina. — Moscow: Faculty of Economics of Lomonosov Moscow State University, 2022. P. 122.

140 The term refers to the 4P concept of the EC model and reflects the total share of waste that has been reduced, reused, recovered and/or recycled. The federal project “Circular Economy” has the following targets: by 2030, 40% of recycled resources in the construction industry, 50% in agriculture and 34% in industry will be reused.

141 Federation Council. The Arctic: Current Environmental Issues // Analytical Bulletin. 2021. № 21 (781). P. 52.

142 Sokolov Y. I. Op. cit. P. 23.

143 Federation Council. Op. cit. P. 54.

and operating nuclear-powered vessels are accumulated in the Arctic. Due to the lack of developed infrastructure for waste logistics and transportation, as well as extreme weather conditions and small population, the Arctic is a hard-to-reach-area, which makes it difficult to solve waste problem and achieve the SDGs.

More importantly, the Arctic zone covers several federal subjects of the federation: Murmansk Oblast and Arkhangelsk Oblast, Nenets Autonomous Okrug, Chukotka Autonomous Okrug and Yamalo-Nenets Autonomous Okrug, Komi Republic, Sakha and Karelia, and Krasnoyarsk Krai, which is home for about 2.6 million people (including 40 indigenous peoples). This means that resource exploitation without a transition to a circular model will limit the possibilities for economic development in the region and aggravate environmental risks on a regional and national scale¹⁴⁴. In addition, the development of the Northern Sea Route, ecotourism, and recreation will put additional pressure on the region. Technological innovation, digitalization and sustainable resource management are needed to maintain the ecological situation in the region.

Examples of Circular Economy Development in the Arctic

Today there are many solutions (financial, technological, legislative, etc.) to the problem of waste generation and accumulation in Russia. In particular, there are several promising projects in the Arctic region, which are the first steps towards a full-fledged CE and are aimed at the implementation of the SDGs:

The project "Clean Arctic"¹⁴⁵. Since 2021 thousands of volunteers have been participating in clean-up days and waste collection expeditions as part of the project. Currently, the volunteers have managed to remove more than 5.2 thousand tons of waste. Norilsk Nickel supports the project and predicts that by 2030 2 million tons of waste and 600 thousand tons of scrap metal will be removed in Norilsk, and 500 abandoned structures will be dismantled¹⁴⁶ ;

- Thermal waste recycling projects¹⁴⁷. The construction of two incinerators in Krasnoyarsk Krai will produce materials that can later be used in other sectors of the economy. These include, for instance, slag, sulphur and sulphur waste. The use of these types of waste in the road construction is especially attractive due to the high quality (ferrous and non-ferrous metal content, strength and durability) and low cost of the raw material;
- The project of the State Atomic Energy Corporation "Rosatom" to neutralize highly hazardous waste. Over the next eight years, the company plans to lift six of the most hazardous objects from the ocean floor, transport them to a disposal place and prepare them for long-term disposal¹⁴⁸. The project is being implemented in partnership with the Ministry of Natural Resources

144 Sokolov, Y.I. op. cit. P. 23.

145 Clean Arctic. [Electronic resource]. URL: <https://cleanarctic.ru/> (accessed: 20.06.2023)

146 About the Clean Norilsk program // Norilskel. [Electronic resource].

URL: <https://www.nornickel.ru/clean-norilsk/program/about/> (accessed: 20.06.2023)

147 Tyaglov S.G., Kozlovsky V.A., Kolyasnikov S.A. Thermal processing enterprises are a new vector of energy development in the Arctic zone. Arctic 2035, No2 (10), 2022. P. 20.

148 These are the six spent nuclear fuel reactors (SNF) from sunken nuclear submarines and the icebreaker Lenin.

es and the Environment of the Russian Federation, which is compiling a register of accumulated hazardous waste objects as part of the “Clean Country” federal project of the National Project “Ecology”;

- “Deep fish processing” project. The project allows the production of fish bone meal from waste and non-seafood fish thanks to the new floating bases and workshops for fish cutting and drying. This project is an example of the EC model implementation in agriculture;
- Projects to switch from diesel and paraffin engines in marine vessels and aircraft to fuel from waste. Diesel- and kerosene-powered vessels are the most common transport in the region. In order to make the use of waste beneficial, transport can be switched to biofuels from plant waste, including agricultural and forestry residues, non-recyclable household waste, and industrial waste gases¹⁴⁹. These initiatives can contribute to the low-carbon development of the region. However, as in the forestry sector, where waste plays a key role in the development of the sector, it is important to establish a wide range of measures for waste logistics and transport, including through the use of mobile and hybrid sorting and recycling stations and technologies¹⁵⁰.
- Discussions on combating microplastics pollution during the conferences under the Russian Chairmanship of the Arctic Council in 2021-2023¹⁵¹. In 2022 under the auspices of the UN 175 countries adopted a resolution on plastic pollution¹⁵². Countries aim to conclude an international legally binding agreement by 2024. The resolution should contribute to the sustainable production and consumption of plastic, reduction of marine plastic pollution etc., as well as to the development of the national plans to combat the plastic pollution. Thus, the resolution can become one of the most important multilateral environmental agreements after the Paris climate agreement. Russia is also involved in the preparation of the agreement.

All in all, the development of the resource and transport potential of the Arctic takes an increasing toll on local fragile ecosystems, which are highly vulnerable to climate change. An additional negative factor which aggravates environmental risks is the Soviet legacy of a large amount nuclear waste, abandoned industrial facilities, and pollution.

To foster sustainable development of the AZRF, the state needs to pursue a balanced and holistic policy, implement measures to minimize the effects of human activities on ecosystems within historical and current issues (waste, pollution, etc.), continue to support companies on their way to reduce pollutant emissions and introduce a legal liability for systematic harm to the environment.

149 Skvortsova A.S., Vorotnikov A.M. The development of green energy is necessary for the development of green tourism in the Arctic // Arctic 2035. 2022. №2 (10). P. 114.

150 Tyaglov S.G., Kozlovsky V.A., Rodionova N.D., Kharagorgiev-Tyaglov A.A. Promising project initiatives of the cyclical economy in the arctic zone // Arctic 2035, №4 (12), 2022. P. 29.

151 Mikhail Mishustin Approved the Concept of Russia's Chairmanship of the Arctic Council in 2021-2023 and Action Plan // The Russian Government, 2022. [Electronic resource]. URL: <http://government.ru/news/42186/> (accessed: 20.06.2023)

152 Historic day in the campaign to beat plastic pollution: Nations commit to develop a legally binding agreement // UNEP, 02.03.2022. [Electronic resource]. URL: <https://www.unep.org/ru/novosti-i-istorii/press-reliz/istoricheskiy-den-dlya-kampanii-po-borbe-s-plastikovym-zagryazneniem> (accessed: 20.06.2023)

Physical climate risks should be taken into account during the construction and operation phases of infrastructure to prevent environmental damage due to potential accidents. The development of a closed-cycle economy model in the Arctic will minimize pollution and preserve the region's unique ecosystems.

3.6. Social Issues of the Arctic Indigenous Peoples

“Indigenous small-numbered peoples” is a concept of Russian legislation describing the indigenous peoples of the North, Siberia and the Far East numbering up to 50 thousand people. The question of belonging to an “indigenous small-numbered people” outside of Russia is quite complex and debatable since there is no common definition common for all countries.

The lack of a universal definition makes it difficult to calculate the number of indigenous people in the Arctic. For example, the Sámi living in the Scandinavian countries and Finland are recognized as an indigenous people by both politicians and the research community. At the same time, they number 80-110 thousand people, of which 60 thousand people live in Norway¹⁵³. According to the Russian legislation, the Norwegian Sámi would not be categorized as indigenous peoples, like the Yakuts, Karelians, or Komi. Further, we will not use the Russian definition of “Indigenous small-numbered peoples” for peoples outside the Russian Federation but will consider them based on whether they are defined as such within a particular jurisdiction.

Northern indigenous peoples live in several large geographic regions: Alaska, the three northern territories of Canada (Yukon, Northwest Territories, and Nunavut), northern Scandinavia (the Arctic regions of Finland, Norway, and Sweden), Greenland, and the northern regions of Russia. At the same time, the Faroe Islands and Iceland, which actively participate in the Arctic policy, were not inhabited before the 9th century, so there is no indigenous population there in the usual sense (unless one can count those who came from the north of Europe speaking Germanic languages¹⁵⁴).

Most northern indigenous peoples tend to be a minority in the provinces where they live. Exceptions are Greenland (about 87% of whose population was Inuit) and Nunavut (Canadian province with a majority Inuit population). However, even within provinces with most white Europeans, indigenous peoples live rather in isolation: for example, within the Yamal-Nenets Autonomous Region, Russians settle in oil and gas exploration areas without settling in much of the region¹⁵⁵.

153 Heleniak T., Turunen E., Wang S. Demographic changes in the Arctic // The Palgrave handbook of Arctic Policy and Politics. / Ed. K. S. Coates, C. Holroyd. Cham.: Springer International Publishing, 2020. P. 43.

154 Ibid. P. 43.

155 Ibid. P. 43.

As a result of this isolated settlement, indigenous peoples created communities that were well adapted to subsistence economy, creating relatively efficient transportation and construction in extreme climatic conditions. The Sámi are a bit of an exception because interaction between them and the Norwegians as well as sharing of livelihoods has a long history¹⁵⁶. Isolation helps conserve the traditional economic activities of indigenous peoples, connected with nomadic cattle breeding, fishing and other trades. This leads to specific development of these peoples: demographic, economic, political.

In terms of demography, a much later demographic transition is noticeable compared to Europeans: indigenous peoples have higher fertility and mortality rates, larger families, younger populations, and lower urbanization rates. Indigenous peoples (except for Scandinavia and partly Greenland) lag their national averages in health-related issues: teenage pregnancy, HIV/AIDS, alcoholism, suicide, drug abuse, and other social problems.

The economic and political development of the Northern peoples is characterized by significant unevenness. On the one hand, there are the Sámi of Norway, Sweden, and Finland, who, taking advantage of their relatively high integration into the welfare states, have attained a significant level of political representation, a high standard of living, education, and health care¹⁵⁷. Other more isolated communities are developing much more slowly. They are much more difficult to integrate into the economic processes taking place at the national level, resulting in specialization in nomadic animal husbandry, fishing, etc.

The indigenous peoples of the Russian Arctic face numerous problems related to the quality of political institutions. A noticeable example is withdrawal of lands of traditional nature use by large companies, when indigenous peoples have no influence over companies' action¹⁵⁸.

There are significant problems related to protection of indigenous culture and language. While the Sámi can use their cultural autonomy to protect their own culture, indigenous peoples in the USA face much greater challenges. This is facilitated by both the weaker political autonomy of the peoples and the higher level of migration, which began after the Second World War along with more active development of natural resources.

This has also led to the problem of the seizure of lands of traditional nature use, many of which turned out to be rich in natural resources. The growing influence of man-made and anthropogenic factors, together with the growth of the number of reindeer herds, leads to a reduction in pastures, i.e., the fodder base of reindeer husbandry, which creates significant economic risks for indigenous peoples. Man-made disasters, such as oil spills, damage to the vegetation cover of the tundra by tractors and all-terrain vehicles, blasting also take an increasing toll on the environment and cause damage to pastures¹⁵⁹.

156 Coates K. S., Broderstad E. G. Indigenous peoples of the Arctic: Re-taking control of the Far North // The Palgrave handbook of Arctic policy and politics. / Ed. K. S. Coates, C. Holroyd. Cham.: Springer International Publishing, 2020. P. 9–10.

157 Ibid. P. 20.

158 Pavlenko V.I., Petrov A., Kutsenko S.Y., Dettler G.F. Indigenous small peoples of the Russian Arctic (problems and prospects for development) (Russian) // Human Ecology. 2019. No 1. P. 27.

159 Ibid. P. 30.

The Arctic is also one of the most vulnerable regions to climate change. Along with the risks common to the whole Arctic population, such as permafrost thawing, there are specific risks associated with traditional agriculture (see sections 3.1., 3.2.). Abnormally hot summers are accompanied by a large number of blood-sucking insects (especially mosquitoes), and cold winters make it difficult to access food. This leads to cases and disruption of the seasonal turnover of pastures.

Despite a significant number of problems, there are many positive trends. Firstly, since the 1960s of the 20th century, the political participation of indigenous peoples has been actively growing. Clear evidence of this is the significant protest activity on the part of indigenous peoples and the willingness to compromise on the part of the political leadership of States. For example, Greenlanders often criticized the Danish administration, which was not sensitive to their cultural problems. The Sámi, led by the protests of the Sámi-Ecological alliance against the Alta dam, took to the streets of Oslo and eventually achieved a significant expansion of their own representation – the Sámi Parliament. The indigenous peoples of the USA and Canada are making progress in the courts and protests, coming into conflict with oil and gas companies¹⁶⁰.

Political participation made it possible to achieve political representation. Together with the Sámi Parliament of Norway, the Sámi parliaments of Sweden and Finland were created. The growth of political representation has made it possible to mitigate economic problems in several countries. For example, in Canada, there are several agreements between indigenous peoples and companies that involve cooperation between them, as well as the participation of indigenous peoples in the company's profit in case it uses land owned by representatives of indigenous peoples¹⁶¹. As a result, in the 21st century indigenous peoples were able to secure a significant presence in the media and were able to influence self-government issues in almost all Arctic countries.

The political participation of indigenous peoples is not limited to participation in the national politics of their countries. On the contrary, they seek to promote their interests in international organizations as well. The main international institute for international cooperation in the Arctic is the Arctic Council, which appeared in 1996 in accordance with the provisions of the Ottawa Declaration. The council also includes organizations representing the indigenous peoples of the Arctic, which along with national states participate in solving the problems of the region and were granted the status of permanent participants.

There are six organizations of small indigenous peoples in the Arctic Council:

- **Aleut International Association**, was founded in 1998 and represents the Aleuts of the USA and Russia;
- **Arctic Athabaskan Council**, was founded in 2000 and represents indigenous peoples of Athabaskan origin in the Arctic and Subarctic regions of the USA (Alaska) and Canada (Yukon Territory and Northwest Territories);

160 Coates K. S., Broderstad E. G. Indigenous... P. 17.

161 Burtseva E. I. et al. Issues of assessment and compensation of losses to small indigenous peoples in the conditions of industrial development of the Arctic (in Russian) // The Arctic: Ecology and Economics. 2019. No. 1. P. 36.



- **Gwich'in Council International**, was established in 1999 to represent the Gwich'in peoples in the USA (Alaska) and Canada (Yukon Territory and Northwest Territories);
- **Inuit Circumpolar Council**, was founded in 1977 and represents about 160,000 Inuit in four different Arctic countries: Denmark (Kalaallit Nunaat — Greenland); Canada (Nunatsiavut, Nunavik, Nunavut, and the Inuvialuit settlement region); the United States (Alaska) and Russia (Chukotka);
- **Russian Association of Indigenous Peoples of the North** was founded in 1990 as the First Congress of Indigenous Peoples of the North of the USSR. It has more than 270 thousand representatives of indigenous peoples from 41 different indigenous groups throughout Northern Russia, Siberia, and the Russian Far East;
- **Sámi Council** was founded in 1956 and is the oldest organization of small indigenous peoples. It represents the Sámi of Norway, Sweden, Finland, and Russia. The Sámi achieved the greatest political representation by creating Sámi parliaments in three countries.

Although the Arctic Council executes a limited number of functions and is primarily an advisory body, it has greatly influenced indigenous advocacy, the development of environmental strategies, and the promotion of regional cooperation.

All in all, in even though there are several challenges for indigenous peoples, e.g., difficulties in interaction with state bodies, there are also positive trends. On the one hand, they include an increase in the well-being of indigenous peoples, and on the other hand in an increase in their political representation both at the national level through associations, councils, parliaments, as for the Saami, and at the supranational level through the Arctic Council.

4. Experience of Bilateral Cooperation with Western Countries (The Example of Interaction with Finland, Canada and Norway)

4.1. Key Messages from the Events

The first international events of the ThinkArctic project were “Russian-Finnish cooperation in the field of sustainable development in the Arctic region” and “Russian-Canadian cooperation in the field of sustainable development in the Arctic region”, which took place in November-December 2021. The events were organized place before the start of the special military operation in Ukraine, so a number of expert assessments voiced during the events do not reflect the conflict in relations between Russia and the West. Additionally, the authors had prepared a background material on Russian-Norwegian cooperation in the Arctic in the field of sustainable development, but due to the outbreak of geopolitical crisis in February 2022 the event was not held. Meanwhile, the conclusions and recommendations given in the final paragraph take into account the specifics of the geopolitical crisis of 2022-2023.

The expert discussions focused on the opportunities and limitations of intercountry dialogue in the Arctic, the effectiveness of the existing platforms and formats, and priority areas for cooperation in the field of sustainable development. Participants in the events emphasized that the leitmotif of cooperation between countries in the region should be the preservation of the Arctic as a territory of peaceful dialogue and sustainable development that organically combines scientific and technological achievements of the 21st century with the cultural and historical traditions of the indigenous population.

Experts noted that **the Arctic could be the starting point for the restoration of relations between Russia and Western countries** after the start of the conflict in Ukraine in 2014. To ensure the sustainable development of the Arctic, it is necessary **to distinguish between cooperation issues and areas where there are inter-country contradictions.**

Of particular importance in establishing cooperation between the countries was scientific cooperation, which was initially limited to the border areas of Russia and Finland, but by early 2022 it had significantly expanded its geography. The establishment of new international scientific centers for comprehensive research in the Arctic was considered critically important, which in the future would strengthen the existing reserve in geophysical and hydrological research and increase the adaptation potential of the region due to the increasing role of the climatic factor in its development.

During the discussions, the experts emphasized that the accelerated rise in Arctic temperatures contributes to an increase in the length of the shipping season and opens up new opportunities for realizing the region’s transit potential, in particular the development of the Northern Sea Route as a new transportation artery connecting Europe and Asia. In this regard, maintaining a balance between the preservation of terrestrial ecosystems and the intensification of economic activity primarily requires raising standards for sustainable navigation in the Arctic, which can be realized

by spreading the principles of responsible green finance in the banking sector, especially in the financing of infrastructure facilities.

According to the invited speakers, an important aspect of the Arctic's sustainable development could be the development of human capital as the main driver of technological progress and increasing the region's investment appeal. This would be facilitated by improving the quality of social infrastructure, the healthcare system, and the education system.

4.2. Key Projects of Russia with Western Countries

Russia's cooperation with Finland, Canada, and Norway on sustainable development in the Arctic until 2022 was characterized by a constructive and pragmatic approach. Despite the contradictions between the countries even before 2022, a number of joint projects in the field of sustainable development were implemented, with great importance given not only to bilateral projects within the framework of the Arctic Council and the Barents Euro-Arctic Council (BEAC), but also to cross-border cooperation and support of local initiatives.

One of the conditions for successful cooperation between the countries in the field of sustainable development in the Arctic can be considered the commitment of Finland, Canada, and Norway to the principles of sustainability, which is also reflected in their Arctic strategies. As priority areas of national Arctic policy, they enshrine climate change mitigation and adaptation, protection of small indigenous peoples, eliminating poverty and hunger, improving the well-being of the Arctic population, innovative development and technological modernization of industry in the region, upgrading transport infrastructure, development of circular economy, enhancing scientific research (Table 4, Table 5, Table 6).

Table 4 – Consistency of the 2019 Arctic and North Canada Policy Framework with the UN SDGs

GOALS OF CANADA'S ARCTIC POLICY	UN SDGS
<p>GOAL 1: CANADIAN ARCTIC AND NORTHERN INDIGENOUS PEOPLES ARE RESILIENT AND HEALTHY</p> <ul style="list-style-type: none"> – eradication of poverty and hunger – ensuring mental and physical health – creating an enabling environment for children, with emphasis on education and culture – intensifying the fight against violence against Indigenous girls and women – culturally acceptable approaches to justice, strengthening restorative justice and other alternatives to imprisonment 	<p>SDG 1 – No Poverty SDG 2 – Zero Hunger SDG 3 – Good Health and Well-being SDG 4 – Quality Education SDG 5 – Gender Equality SDG 10 – Reduced Inequalities SDG 16 – Peace, Justice and Strong Institutions</p>
<p>GOAL 2: STRENGTHENED INFRASTRUCTURE THAT CLOSSES GAPS WITH OTHER REGIONS OF CANADA</p> <ul style="list-style-type: none"> – monitoring the state of the environment in the Arctic zone to combat climate change in the Arctic – investment in the construction of roads, the development of mobile and Internet communications – simplification of access to electricity, including by connecting settlements to hydropower systems 	<p>SDG 13 – Climate Action SDG 9 – Industry, Innovation and Infrastructure SDG 7 – Affordable and Clean Energy</p>
<p>GOAL 3: STRONG, SUSTAINABLE, DIVERSIFIED AND INCLUSIVE LOCAL AND REGIONAL ECONOMIES</p> <ul style="list-style-type: none"> – narrowing the gap in income and living standards between arctic and non-Arctic dwellers – increasing the number of jobs for northerners – optimization of the process of extraction of natural resources so that the extraction process is economically profitable and brings minimal harm to the environment 	<p>SDG 10 – Reduced Inequalities SDG 8 – Decent Work and Economic Growth SDG 12 – Responsible Consumption and Production</p>
<p>GOAL 4: KNOWLEDGE AND UNDERSTANDING GUIDES DECISION-MAKING</p> <ul style="list-style-type: none"> – investing in educational projects for residents of the Arctic territories – equal involvement of women and men of the northern territories in scientific research – reducing the gap in access to education and science between the inhabitants of the Arctic and non-Arctic territories 	<p>SDG 4 – Quality Education SDG 5 – Gender Equality SDG 10 – Reduced Inequalities</p>
<p>GOAL 5: CANADIAN ARCTIC AND NORTHERN ECOSYSTEMS ARE HEALTHY AND RESILIENT</p> <ul style="list-style-type: none"> – developing knowledge about the responsible consumption of natural resources among Indigenous minorities – reduction of pollution of land and water bodies in the northern regions – development of interregional and international cooperation to combat climate change in the Arctic 	<p>SDG 12 – Responsible Consumption and Production SDG 14 – Life Below Water SDG 15 – Life on land SDG 13 – Climate Action SDG 17 – Partnership for the Goals</p>
<p>GOAL 6: THE RULES-BASED INTERNATIONAL ORDER IN THE ARCTIC RESPONDS EFFECTIVELY TO NEW CHALLENGES AND OPPORTUNITIES</p> <ul style="list-style-type: none"> – establishing Canada's leadership at international venues where Arctic issues are discussed – increasing the representation of Canadian citizens, and in particular the north, in international forums and negotiations – strengthening bilateral cooperation with the main Arctic and non-Arctic states – a clear definition of Canadian maritime boundaries in the Arctic 	<p>SDG 16 – Peace, Justice and Strong Institutions SDG 17 – Partnership for the Goals</p>

<p>GOAL 7: THE CANADIAN ARCTIC AND NORTH AND ITS PEOPLE ARE SAFE, SECURE AND WELL-DEFENDED</p>	<p>SDG 16 – Peace, Justice and Strong Institutions</p>
<ul style="list-style-type: none"> – strengthening Canada’s cooperation with international partners on state security and protection of the population of the Arctic territories – improving the speed of prevention and response to security incidents in the Arctic and the North – enforcing Canada’s legislative and regulatory framework governing transport connecting, border integrity and environmental protection in the Arctic and the North – enhancing nationwide emergency management capacity in the Arctic and northern communities – maintaining public safety through effective and culturally sensitive crime prevention initiatives in the Arctic regions 	
<p>GOAL 8: RECONCILIATION SUPPORTS SELF-DETERMINATION AND NURTURES MUTUALLY RESPECTFUL RELATIONSHIPS BETWEEN INDIGENOUS AND NON-INDIGENOUS PEOPLES</p>	<p>SDG 10 – Reduced Inequalities</p>
<ul style="list-style-type: none"> – protection and enforcement of the rights of northern Indigenous peoples – providing opportunities for the Arctic and northern peoples, within the framework of which they are able to independently conclude treaties, agreements and other constructive arrangements with the head of state (the British monarch), which will provide the basis for their permanent relationship – the restoration and strengthening of the Indigenous culture, including national languages – working with Northern Governments and Indigenous peoples’ organizations to bridge the socio-economic gap between Arctic Aboriginal peoples and other Canadians 	

Source: compiled by the authors based on Canada’s 2019 Arctic and Northern Policy Framework

Table 5 – Consistency of Finland’s Arctic Strategy 2021 with the UN SDGs

GOALS OF FINLAND’S ARCTIC POLICY	UN SDGs
<p>1. CLIMATE CHANGE MITIGATION AND ADAPTATION</p> <ul style="list-style-type: none"> – emission reduction, renewable energy development, circular economy – biodiversity conservation, natural disaster risk monitoring system – climate-wise infrastructure – food security for the locals 	<p>SDG 12 – Responsible Consumption and Production SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on land</p>
<p>2. INHABITANTS, PROMOTION OF WELL-BEING:</p> <p>2.1. Well-being</p> <ul style="list-style-type: none"> – healthcare, telemedicine technologies – digitalization of primary and secondary education – Gender Equality, equal involvement of residents in the work of regional and local cooperation platforms 	<p>SDG 3 – Good Health and Well-being SDG 4 – Quality Education SDG 5 – Gender Equality SDG 8 – Decent Work and Economic Growth</p>
<p>2.2. Rights of the indigenous people</p> <ul style="list-style-type: none"> – preservation of the Sámi national culture, language – working of the «Truth and Reconciliation Commission» to eliminate historical injustice against the Sámi in Finland 	<p>SDG 4 – Quality Education SDG 10 – Reduced Inequalities SDG 16 – Peace, Justice, and Strong Institutions</p>

3. EXPERTISE, LIVELIHOODS, AND LEADING-EDGE RESEARCH

- economic growth using the Finnish experience in the field of sustainable development (ship electrification and automation, icebreaking technologies)
- wind energy
- involvement of research centers in the Arctic research
- development of human capital, attraction of skilled labour

SDG 4 – Quality Education
SDG 8 – Decent Work and Economic Growth
SDG 9 – Industrialization, Innovation, and Infrastructure
SDG 11 – Sustainable Cities and Communities
SDG 14 – Life Below Water

4. INFRASTRUCTURE AND LOGISTICS

- alternative fuel transport, infrastructure for its maintenance
- year-round tourism
- updating the icebreaker fleet
- digital economy, telecommunications, data centers

SDG 9 – Industrialization, Innovation, and Infrastructure
SDG 11 – Sustainable Cities and Communities
SDG 14 – Life Below Water

Source: Compiled by the authors on the basis of the Finland's Arctic Strategy 2021

Table 6 – Consistency of Norwegian Arctic strategy goals with the UN SDGs

GOALS AND DIRECTIONS OF NORWEGIAN ARCTIC POLICY	UN SDGs
<p>1. AN INTEGRATED APPROACH TO CLIMATE AND ENVIRONMENTAL CHANGE IN THE ARCTIC</p> <ul style="list-style-type: none"> – reducing greenhouse gas emissions – conservation of biodiversity, establishing a risk monitoring system for the management of living marine resources and marine biodiversity – development of knowledge bases for ecosystem-based management of the natural environment 	<p>SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land</p>
<p>2. SOCIAL DEVELOPMENT:</p> <p>2.1. Promoting sustainable communities</p> <ul style="list-style-type: none"> – development of cross-border contacts and cooperation – development of human capital – strengthening cooperation between the business sector, counties, municipalities and colleges and universities – development of small towns and urban centers – supporting local handicrafts 	<p>SDG 4 – Quality Education SDG 8 – Decent Work and Economic Growth SDG 9 – Industry, Innovation and Infrastructure SDG 10 – Reduced Inequalities SDG 11 – Sustainable Cities and Communities</p>
<p>2.2. Integration of indigenous peoples lifestyles</p> <ul style="list-style-type: none"> – preservation of the Sámi national culture and language – equal involvement of the Sámi in regional and local cooperation platforms 	<p>SDG 10 – Reduced Inequalities SDG 16 – Peace, Justice and Strong Institutions</p>
<p>3. ADDED VALUE AND COMPETENCE DEVELOPMENT</p> <ul style="list-style-type: none"> – increasing the economic potential of Northern Norway and developing the business sector – sustainable management of fish stocks, with research centers for marine research – development of wind energy – human capital development, cooperation in talent development and recruitment 	<p>SDG 8 – Decent Work and Economic Growth SDG 9 – Industry, Innovation and Infrastructure SDG 11 – Sustainable Cities and Communities SDG 14 – Life Below Water</p>
<p>4. INFRASTRUCTURE, TRANSPORT AND COMMUNICATIONS</p> <ul style="list-style-type: none"> – expansion of transport infrastructure – developing green maritime and air transport and their infrastructure – improving the response to environmental disasters 	<p>SDG 9 – Industry, Innovation and Infrastructure SDG 11 – Sustainable Cities and Communities SDG 14 – Life Below Water</p>

4.2.1. Key Joint Projects between Russia and Finland in the Arctic

Until the international political crisis in 2022, relations between Russia and Finland in the Arctic had been developing quite intensively. The countries strengthened their political dialogue and regularly exchanged their opinions on the future development of the region. Some similarities in the implementation of the SDGs in the Arctic have been noted by policymakers in both Russia and Finland, which has created the conditions for strengthening bilateral cooperation on sustainability¹⁶².

¹⁶² Putin called Russia's and Finland's approaches to combating climate change close // TASS, 2021. [Electronic resource]. URL: <https://tass.ru/politika/12799883> (accessed: 11.11.2021)

Intercultural relations between Russia and Finland have played an important role, due to the presence of Finno-Ugric peoples (Karelians, Komi-Permyaks, Mordva, Khanty and Mansi) on the territories of both countries. The outbreak of the special military operation in Ukraine has certainly frozen many high-level international initiatives, but a number of joint agreements and projects are still being implemented.

Below there is a list of key bilateral projects and joint initiatives between Finland and Russia aimed at achieving the UN Sustainable Development Goals.

- – ongoing project
- – completed project
- – suspended project

Environmental Protection

- Oil spill prevention and control within the framework of the cooperation agreement on preparedness and response to oil pollution in offshore areas between Russia and Finland (2013) (SDG 14 – Life Below Water);
- Consultation of Russian-Finnish working groups on forest management, reforestation and regulation of forest resources pricing principles¹⁶³ (SDG 15 – Life on Land).

Green Energy

- Construction of hydroelectric power stations, wind and solar power plants in the Murmansk Oblast and the Republic of Karelia by the Finnish company Fortum (SDG 7 – Affordable and Clean Energy).

Circular Economy

- Implementation of joint recycling and waste management projects (supported by the Finnish-Russian Chamber of Commerce and the Russian Environmental Operator ¹⁶⁴) (SDG 12 – Responsible Consumption and Production).

Icebreaker Construction

- Construction of icebreakers and Arctic-class tankers between Finnish companies Aker Arctic165, Helsinki Shipyard and Russian companies Norilsk Nickel, Sovcomflot, Novatek and Rosatom166 (SDG 7 – Affordable and Clean Energy).

163 Russia and Finland discuss cooperation in sustainable forestry development // Ministry of Natural Resources of the Russian Federation, 2019. [Electronic resource]. URL: http://www.mnr.gov.ru/press/news/rossiya_i_finlyandiya_obsudili_vzaimodeystvie_v_voprosakh_ustoychivogo_razvitiya_lesnogo_khozyaystva/?special_version=Y (accessed: 11.11.2021)

164 Russia and Finland to continue cooperation on solid waste management // Vedomosti, 2.09.2021. [Electronic resource]. URL: https://www.vedomosti.ru/press_releases/2021/09/02/rossiya-i-finlyandiya-prodolzhat-sotrudnichestvo-v-oblasti-obrascheniya-s-tko (accessed: 11.11.2021)

165 Russia and Finland intend to cooperate in icebreaker construction and Arctic exploration // Portnews, 2021. [Electronic resource]. URL: <https://portnews.ru/news/313432/> (accessed: 11.11.2021)

166 Nornikel will invest into ice-breakers // Kommersant, 2021. [Electronic resource]. URL: <https://www.kommersant.ru/doc/4917011> (accessed: 11.11.2021)

Transport and Infrastructure

- "Arctic Connect" trans-Arctic fibre-optic cable project between the Finnish company Cinia Oy and the Russian public company Megafon, completion of preliminary offshore studies (SDG 9 - Industry, Innovation and Infrastructure).
- Development of plans for new transport corridors inland, including the Vorkuta - Kotlas - Syktyvkar - Arkhangelsk - Vartius - Oulu167 road and the Murmansk - Raia-Joseppi - Ivalo168 road route, under the Barents Euro-Arctic Council working groups (SDG 9 - Industry, Innovation and Infrastructure).
- Reconstruction of crossing points on the Finnish-Russian border as part of the Karelia, Russia-Southeast Finland and Kolarctic cross-border cooperation programmes, e.g., Värtsilä, Vartius, Salla (SDG 9 - Industrialisation, Innovation and Infrastructure).

Intercultural Communication

- Organizing a World Congress of Finno-Ugric Peoples every four years¹⁶⁹, aimed at strengthening cultural relations at international and interregional level, identifying problems of intercultural communication (SDG 17 – Partnerships for the Goals).
- Hosting an annual Russian-Finnish cultural forum that brings together experts from different fields of art to establish cultural contacts and exchange knowledge and experiences¹⁷⁰ (SDG 17 – Partnerships for the Goals).

Science and Education

- Implementation of the Cross-Border University and FIRST student exchange programs between Russian and Finnish universities (St. Petersburg State University, Peter the Great St. Petersburg Polytechnic University, European University in St. Petersburg, St. Petersburg State Forestry University, Petrozavodsk State University; Tampere University and University of Eastern Finland¹⁷¹) (SDG 4 – Quality Education);
- Exchange of undergraduate and postgraduate students under the programme of the Centre for International Exchange of the Finnish Ministry of Education (CIMO) and under the agreement between the Academy of Finland and the Russian Academy of Sciences¹⁷² (SDG 4 – Quality Education).

167 Joint Transport Plan for the Barents Region // The Barents Euro-Arctic Region, 2021. [Electronic resource].

URL: <http://www.rador.ru/activities/plan/inf/300614/01.pdf> (accessed: 11.11.2021)

168 Ibid.

169 Eighth World Congress of Finno-Ugric Peoples // Fenno-Ugria. [Electronic resource].

URL: <https://fennougria.ee/ru/predstavitelstva/vsermirnye-kongressy/vosmoj/> (accessed 11.11.2021)

170 Russian-Finnish Cultural Forum // Kulturforum, 2023. [Electronic resource]. URL: <https://www.kultforum.org/ru> (accessed: 28.06.2023)

171 Russian-Finnish relations // Embassy of the Russian Federation in Finland [Electronic resource]

URL: <https://helsinki.mid.ru/rossijsko-finlandskie-otnosenia> (accessed 11.11.2021).

172 Cooperation in science and education // Embassy of the Russian Federation in Finland. [Electronic resource].

URL: <https://helsinki.mid.ru/sotrudnicestvo-v-sfere-nauke-i-obrazovania> (accessed: 11.11.2021)

4.2.2. Key Joint Projects between Russia and Canada in the Arctic

Traditionally, Russia and Canada have shared common ground in the context of ensuring sustainable development in the Arctic, promoting a sustainable agenda within the Arctic Council and fostering international cooperation in polar regions. For both countries, the main principle of interaction in the region was to explore the potential of the Arctic as an area for peaceful dialogue and sustainable development, seamlessly combining the realities and scientific and technological achievements of the 21st century with the cultural and historical traditions of the indigenous population. The countries also share a “national approach” with regard to the regulation of navigation along the Northern Sea Route and the Northwest Passage. Thus, both countries regard these waters as part of their territorial waters¹⁷³.

Russian-Canadian cooperation is characterized by an elaborate legal and regulatory framework. In the field of cooperation in the Arctic region, the first comprehensive document was the Agreement between the Government of the Russian Federation and the Government of Canada on Cooperation in the Arctic and the North, signed on 19 June 1992¹⁷⁴.

In the field of environmental protection, the Agreement between the Government of the Russian Federation and the Government of Canada on cooperation in environmental matters was signed on 8 May 1993¹⁷⁵. The agreement involves coordination between countries on issues such as protecting marine biological resources, combating climate change and monitoring the state of the environment.

Prior to the special military operation in Ukraine, a close dialogue was maintained between officials, subject matter experts and representatives of the academic community in Russia and Canada on a broad agenda, including the status of indigenous minorities of the North, the continental shelf, climate, environmental protection, fisheries and navigation in the Arctic. The current geopolitical crisis, however, has significantly narrowed the opportunities for sustainable development projects between the countries, and many intergovernmental and private sector initiatives have been put on hold. Below there is a list of key areas and projects implemented by Canada and Russia in the Arctic under the UN SDGs.

173 Doroshenko I. S. The Arctic Five: search for a balance of power in the region // Post-Soviet Issues. 2020. Vol. 7. №. 3. P. 278.

174 Agreement between the Government of the Russian Federation and the Government of Canada on Cooperation in the Arctic and the North, 1992 // Official website of the Ministry of Foreign Affairs of the Russian Federation. [Electronic resource]. URL: https://www.mid.ru/foreign_policy/international_contracts/2_contract/-/storage-viewer/bilateral/page-433/48734?_storageviewer_WAR_storageviewerportlet_advanced-Search=false&_storageviewer_WAR_storageviewerportlet_fromPage=search&_storageviewer_WAR_storageviewerportlet_andOperator=1 (accessed: 23.11.2021)

175 Agreement between the Government of the Russian Federation and the Government of Canada on Co-operation on Environmental Issues, 1993 // Official website of the Ministry of Foreign Affairs of the Russian Federation. [Electronic resource]. URL: <https://mddoc.mid.ru/api/ia/download/?uuiid=9a385953-efad-4a61-bbfe-185dcb0bf985> (accessed 26.11.2021)

- – ongoing project
- – completed project
- – suspended project

Environmental Protection

- Agreement on the Prevention of Unregulated Fishing on the High Seas and in the Central Arctic Ocean between Russia and Canada (2018) (SDG 14 – Life Below Water).
- Implementation of a project to enhance the habitat of wood bison on the Eurasian continent (since 2006), supported by the Government of the Republic of Sakha (Yakutia) and the Canadian National Parks Management Agency (SDG 15 – Life on Land).

Science and Education

- Agreement between Russia and Canada on strengthening international scientific cooperation in the Arctic (2017)¹⁷⁶. The purpose of the agreement is to establish a data exchange between research centers in Russia and Canada, to increase opportunities for students to engage in research activities in order to improve competencies and knowledge about the Arctic.
- Implementation of joint research projects: Russian-Canadian reindeer harness research expedition in Yamal (2017); Russian-Canadian salmon research expedition in Alaska (2019) (SDG 15 – Life on Land).

Supporting small Indigenous Peoples of the North

- Collaboration within the Inuit Circumpolar Council in order to improve the quality of indigenous peoples and state institutions in the Russian Arctic (together with the Russian Association of Indigenous Peoples of the North¹⁷⁷).
- Establishment of the non-profit Kupol Foundation in 2009. The founder of the fund is Chukotka Mining and Geological Company, part of the Kinross Gold Group (Canada). The main areas of the fund's activities are: 1) traditions of the indigenous peoples of the North, Siberia and the Far East, including methods of traditional nature management, 2) healthcare, 3) education and training, 4) sustainable development of small and medium-sized businesses¹⁷⁸.

4.2.3. Key Joint Projects between Russia and Norway in the Arctic

Cooperation between Russia and Norway on sustainable development in the Arctic is an important aspect of the countries' bilateral cooperation. This is primarily due to the fact that both countries have vast territories in the Arctic Circle, a common land border and a long maritime border

176 "Agreement on Strengthening International Arctic Scientific Cooperation" // Electronic Fund of Legal and Regulatory and Technical Documents [Electronic resource]. URL: <https://docs.cntd.ru/document/542624227> (accessed: 10.12.2021)

177 Institution Building for Aboriginal Peoples of the North in Russia (INRIPP-2) // Inuit Circumpolar Council. [Electronic resource]. URL: <https://www.inuitcircumpolar.com/media-and-reports/archives/institutional-building-for-northern-aboriginal-peoples-in-russia-inripp-2/> (accessed: 23.11.2021)

178 Kupol Foundation // Official website of the Kupol Foundation. [Electronic resource]. URL: <http://kupolfoundation.ru/> (accessed: 23.11.2021)

in the Barents region. Both countries recognize the need to strike a balance between realizing the economic and resource potential of the Arctic and preserving the unique nature of the region.

Their cooperation in the region is based on the Treaty on Maritime Delimitation and Cooperation in the Barents Sea and Arctic Ocean, signed in 2010¹⁷⁹. The treaty resolved the issue of maritime delimitation, and the final dividing line was drawn midway between the lines originally claimed by the countries¹⁸⁰.

Environmental protection remains an important area of cooperation between Russia and Norway in the Arctic, and an agreement on environmental protection has been in force between the two countries since 1992¹⁸¹. To implement it, a joint Norwegian-Russian environmental cooperation commission has been set up, whose work covers protection of the marine environment, biodiversity, reducing and controlling environmental pollution and radioactive pollution as well as cross-border cooperation and protection of the natural and cultural heritage.

As Russia and Norway share a border in the Barents Sea, both countries have an equal and mutual responsibility to protect the marine ecosystem and to preserve all plant and animal species found in the region. In this field, an Agreement between the Government of the Russian Federation and the Government of the Kingdom of Norway on Cooperation in Combating Oil Pollution in the Barents Sea was signed in 1994¹⁸², and cooperation between the countries is implemented through the Russian-Norwegian Working Group on the Marine Environment.

Below there is a list of key areas and initiatives that Russia and Norway have implemented in the Arctic in the field of sustainable development.

- – ongoing project
- – completed project
- – suspended project

Environmental Protection

- Combating marine pollution: Russian-Norwegian workshop on combating marine debris and microplastics pollution in the Barents Sea¹⁸³ (2018) (SDG 6 - Clean Water and Sanitation; SDG 14 – Life Below Water; SDG 15 – Life on Land);

179 Treaty between the Russian Federation and the Kingdom of Norway on maritime delimitation and cooperation in the Barents Sea and Arctic Ocean, 15 September 2010// Official web resources of the President of Russia. [Electronic resource]. URL: <http://www.kremlin.ru/supplement/707> (accessed: 12.11.2022)

180 Stepanov I.A., Smolovik E.V. Kazakovtseva A.A. The International Dimension of Norwegian Arctic Policy and the Accumulated Capital of Russian-Norwegian Cooperation //Arctic and North. 2022. № 49. P. 133.

181 On signing the Agreement between the Government of the Russian Federation and the Government of the Kingdom of Norway on cooperation in the field of environmental protection dated 03 August 1992 // Consortium "Codex". URL: <https://docs.cntd.ru/document/901603203> (accessed: 25.02.2022)

182 Russian-Norwegian cooperation on oil pollution control // Industrial Safety Systems. URL: <https://www.spbecolog.com/sotrudnichestvo/mezhdunarodnye-ucheniya/rossiysko-norvezhskoe-sotrudnichestvo-po-borbe-s-zagryazneniem-neftyu/> (accessed 25.02.2022)

183 Russian-Norwegian workshop on combating pollution of the Barents Sea by marine debris and microplastics was held in the Ministry of Natural Resources of Russia // Ministry of Natural Resources. URL: http://www.mnr.gov.ru/press/news/v_minprirody_rossii_sostoyalsya_rossiysko_norvezhskiy_seminar_po_borbe_s_zagryazneniem_barentseva_mo/?sphrase_id=426961 (accessed 25.02.2022)

- Activities of the Joint Norwegian-Russian Commission on Environmental Protection: implementation of a programme including 1) waste management in Murmansk; 2) introduction of best available techniques (BAT) in enterprises in the northern regions, based on Norwegian experience; 3) reducing pollution in the Barents Sea (2019-2021¹⁸⁴) (SDG 12 – Responsible Consumption and Production, SDG 14 – Life Below Water);
- Implementation of campaigns and coastal clean-up projects, Norwegian-Russian projects MALINOR (Mapping marine litter in the Norwegian and Russian Arctic Seas), DIMARC (Detecting, identifying and mapping plastic in the Arctic using robotics and digital solutions) и ArcToMal (Arctic tourism in the Barents Sea – awareness and participation for marine litter prevention) (2021)¹⁸⁵. The projects are sponsored by Akvaplan-niva¹⁸⁶ Norway and aim to reduce pollution of the Barents Sea coastline from litter¹⁸⁷ (SDG 14 – Life Below Water);
- Developing an integrated approach to marine environmental management in the framework of the Russian-Norwegian Working Group on the Marine Environment¹⁸⁸. On the Norwegian part, the Barents Sea Marine Environment Management Plan aims to strike a balance between environmental protection and commercial activities in the region (fishing, shipping, oil and gas extraction)¹⁸⁹. The Russian plan is under development and will aim to ensure sustainable management of natural resources in the Arctic seas and in the Russian part of the Barents Sea (SDG 14 – Life Below Water);
- Creation of an Internet portal “Barentsportal”¹⁹⁰, which contains environmental data about the Barents Sea. The portal was launched to share information in the field of integrated environmental management of the Barents Sea¹⁹¹ (SDG 14 – Life Below Water);
- Implementation of biodiversity conservation projects under the Working Programme of Russian-Norwegian Cooperation in Environmental Protection, including “Sea Bird Populations in the Barents Sea Region”, “Vulnerable and Threatened Bird Species in the Barents Sea Region”, “Marine Mammal Populations in the Barents Sea Region”¹⁹² (2019-2021).

184 Working programme of Russian-Norwegian cooperation in the field of environmental protection for 2019-2021 // Mixed Russian-Norwegian Commission on Environmental Protection. URL: http://www.kolgimet.ru/fileadmin/user_upload/Files/prog_ru_nor.pdf (accessed: 25.02.2022)

185 Russian-Norwegian webinar “The problem of marine debris in the Barents Sea: status and sources” // Arctic Fund. URL: https://arctic.narfu.ru/index.php?option=com_content&view=article&id=1734:rossijsko-norvezhskij-vebinar-problema-morskogo-musora-v-barentsevom-more-sostoyanie-i-istochniki&catid=8&lang=ru&Itemid=548 (accessed 25.02.2022)

186 Akvaplan-niva is a subsidiary of the Norwegian Water Research Institute (Norsk institutt for vannforskning (NIVA), which cooperates with Russia in marine and freshwater ecosystem research, environmental monitoring, shipping analysis, and training young scientists.

187 Ibid.

188 Working programme of Russian-Norwegian cooperation in the field of environmental protection for 2019-2021 // Mixed Russian-Norwegian Commission on Environmental Protection. [Electronic resource].

URL: http://www.kolgimet.ru/fileadmin/user_upload/Files/prog_ru_nor.pdf (accessed: 25.02.2022)

189 Norwegian-Russian cooperation on the marine environment // Norwegian Polar Institute. [Electronic resource]. URL: <https://www.npolar.no/en/themes/international-cooperation-in-the-arctic/norwegian-russian-cooperation-on-the-marine-environment/> (accessed: 25.02.2022)

190 Barentsportal // Joint Norwegian-Russian Environmental Status Reporting for Barents Sea. [Electronic resource].

URL: <https://www.barentsportal.com/barentsportal/index.php/ru/> (accessed: 25.02.2022)

191 Stepanov I.A., Smolovik E.V. Kazakovtseva A.A. The International Dimension of Norwegian Arctic Policy and the Accumulated Capital of Russian-Norwegian Cooperation // Arctic and North. 2022. № 49. P. 130.

192 The third meeting of the Russian-Norwegian Working Group on Biodiversity Cooperation was held in Norway // Ministry of Natural Resources. [Electronic resource]. URL: http://www.mnr.gov.ru/press/news/v_norvegii_sostoyalos_trete_zasedanie_rossijsko_norvezhskoy_rabochej_gruppy_po_sotrudnichestvu_v_obl/?sphrase_id=426961 (accessed 25.02.2022)

Fishing

- Establishment of a Joint Norwegian-Russian Fisheries Commission, where joint decisions are made on the following topics: the level of total allowable catch (TAC), TAC allocations between Russia and Norway, technical measures on fishing gear; they also implement systems to make sure that the fishing industry complies with all regulatory decisions¹⁹³.

Oil and Gas Production

- Establishment of an Oil and Gas Working Group, an Energy Efficiency and Renewable Energy Working Group and an Expert Group within the Bilateral Dialogue on Oil, Gas and Environmental Issues¹⁹⁴.
- Agreement on Seismic Data Exchange in the Barents Sea (2016), Intergovernmental Agreement on Seismic Data Collection up to and along the Barents Sea and Arctic Ocean Continental Shelf Boundary Line (2018)¹⁹⁵.
- Cooperation between the Norwegian oil and gas state-owned concern Equinor and PJSC Rosneft. "Equinor owned 30% of the Kharyaga oilfield as part of a production sharing agreement but withdrew from the project in 2022¹⁹⁶.
- Participation of Russian companies in the Norwegian government's tender for the allocation of Norwegian offshore development licenses to national and international companies. For example, in 2016 Lukoil Overseas North Shelf AS received 20% of the Arctic shelf development licences together with Det Norske, Statoil, Petoro AS¹⁹⁷.

Sociocultural Interaction

- Hosting joint cultural events: Russian Language and Culture Day in Kirkenes, Norway¹⁹⁸ (2018); the annual Russian-Norwegian Cultural Forum, including open academic lectures and seminars, film screenings, and creative meetings¹⁹⁹.
- Conservation of the Pasvik-Inari Trilateral Park, shared by Russia, Norway, and Finland. The countries assess and jointly monitor the aquatic and terrestrial ecosystems in the park and develop tourist routes.

193 Joint Norwegian-Russian Fisheries Commission // BarentsPortal. [Electronic resource]. URL: <https://www.barentsportal.com/barentsportal/index.php/ru/status-2016/284-affiliated-topics-data-from-2013/adopting-and-adapting-an-ecosystem-approach-to-management/994-joint-norwegian-russian-fisheries-commission> (accessed: 01.03.2022)

194 Energy // Embassy of the Russian Federation in Norway. [Electronic resource]. URL: <https://norway.mid.ru/ru/countries/energetika/> (accessed 25.02.2022)

195 Ibid.

196 Equinor withdrew from Kharyaga PSA // Vedomosti, 02.09.2022. [Electronic resource]. URL: <https://www.vedomosti.ru/business/articles/2022/09/02/938962-equinor-vishla-haryaginskogo-srp> (accessed 20.06.2023)

197 Norway announced the start of the 24th round of offshore licensing allocation // PRO-ARCTIC. URL: <https://pro-arctic.ru/29/08/2016/news/22950> (accessed 25.02.2022)

198 MAGU held Russian Language and Culture Days in Kirkenes // Khibiny. [Electronic resource]. URL: <https://www.khibiny.com/news/archive/160816/> (accessed: 01.03.2022)

199 Russian-Norwegian cultural forum opened in Murmansk // Government of Murmansk region. [Electronic resource]. URL: <https://gov-murman.ru/info/news/401581/> (accessed: 01.03.2022)

4.3. Risks and Prospects of Interaction with Western Countries

The current geopolitical crisis is undoubtedly having a negative impact on international cooperation in the Arctic region. Once considered a platform for dialogue, not subject to the overflow of international conflicts, the Arctic today is actually one of the zones of the conflict of interests of Western countries and Russia.

Russia's isolation from the Arctic Council has prevented it from taking full advantage of the window of opportunity to implement the comprehensive agenda for sustainable development of the Arctic that has become the leitmotif of the Russian presidency program. Many bilateral and multilateral programs involving Russia, including those outside the Arctic Council, have either been suspended or terminated altogether.

Nevertheless, **the challenges to socio-economic development in the region make it necessary to gradually restore dialogue with Western countries, primarily on the most acute issues related to climate change in the Arctic.** Despite the limited opportunities for cooperation between Russia and Western countries at the moment, **in the medium term it is necessary to use the accumulated capital and the history of cooperation in such areas as environmental protection and climate change, science and education, and support for the Arctic population, including small indigenous peoples of the North.** As the crisis is over, it is also necessary to realize the region's transport potential, the development of which will largely determine the opportunities for improving the quality of life in the region.

In the context of the progressive resumption of dialogue with Western countries in the Arctic, it is positive and constructive to maintain cooperation between Russia and Norway within the framework of the Joint Norwegian-Russian Fisheries Commission, aimed at sustainable management and exploitation of marine bioresources in the Barents Sea. Moreover, despite numerous objections from EU representatives, in November 2022 Russia extended its agreement with the Faroe Islands on establishing fishing quotas. In addition, international institutions, such as the Northwest Atlantic Fisheries Organization and the Northeast Atlantic Fisheries Commission, continue to operate, contributing both to the economic well-being of Arctic residents and to the conservation of marine ecosystems. In addition to cooperation in the joint management of marine resources, cooperation in search and rescue at sea has been maintained in various parts of the Arctic.

There are some positive trends in the development of the Arctic Council. For example, on May 11, 2023, a meeting at the level of senior officials of the Arctic Council was held with the participation of representatives of Western countries. The joint statement signed at the end of the meeting gave a positive assessment of the Arctic Council's activities during the Russian presidency. At the same time, comments by the new chairman of the Arctic Council's Senior Arctic Officials Committee, who expressed his intention to engage in dialogue with all Arctic countries, were also encouraging.

Finally, cross-border and cross-human connections play an important role in sustaining

cooperation on sustainable development. Arctic residents from different countries are united by common problems and challenges that can only be solved through the joint efforts of all Arctic countries. A close network of contacts and connections between people within scientific and expert communities, among activists, etc. is of fundamental importance in the current context where cooperation at the official level has been curtailed.

The following is a list of potential areas of cooperation that Russia, Canada, and Finland can jointly pursue in the field of sustainable development as they emerge from the current geopolitical crisis.

Environmental Protection and Combating Climate Change

- biodiversity conservation (SDG 14 – Life Below Water, SDG 15 – Life on Land);
- prevention and control of Arctic marine pollution, launching initiatives to clean up the oceans from marine debris and microplastics (SDG 14 – Life Below Water).

Science and Education

- organizing a joint Arctic monitoring system using satellite technologies (SDG 13 – Climate Action);
- developing a common international standard for monitoring data exchange (SDG 13 – Climate Action);
- conducting joint expeditions to study the impact of climate change on Arctic ecosystems, studying the absorptive capacity of the ocean (SDG 13 – Climate Action).

Transportation and Infrastructure

- development of a road and rail network, and reconstruction of border crossing points (SDG 9 – Industry, Innovation and Infrastructure);
- extension of green finance principles to shipping and icebreaking projects.

Support for Indigenous Peoples

- preservation of indigenous cultures, the use and promotion of their languages within the Arctic region, and the preservation of traditions, including through the organization of cultural and educational organizations.

5. Bilateral Cooperation with Asian and Latin American Countries (Experience of Cooperation with China, India, Japan, Republic of Korea, and Brazil)

5.1. Key Messages from the Events

Cooperation on sustainable Arctic issues between Russia and Asian and Latin American countries was covered in detail in four sessions of the ThinkArctic events: “Russian-Chinese Cooperation in the Field of Sustainable Development in the Arctic Region” (May 26, 2022), the EEF session on “The Eastern Dimension of International Cooperation in the Arctic” (September 7, 2022), the EEF session on “The Global Impact of the Russian Arctic: Opportunities for South Asia” (September 7, 2022) and the expert dialogue “Prospects for scientific cooperation between Russia and Brazil for Sustainable Development of the Arctic” (April 19, 2023).

Building close ties between Russia and the countries of Asia and Latin America is particularly important in the context of increasing geopolitical tensions. Even though the Arctic has traditionally been an area of international cooperation regardless of the level of conflict in the world arena, today one can observe Russia’s isolation from traditional cooperation formats. **Under such circumstances it is necessary to look for alternative partners to ensure the sustainable development of the Arctic and promote its own independent agenda in the region.**

During the expert discussions it was noted that the growing interest towards the Arctic coming from Asian and Latin American countries is largely due to climatic changes in the region, the pace of which over the polar circle is much higher than the average on the planet. Climate change, especially the melting of Arctic glaciers, has a significant impact on the economic activities of Asian countries. At the same time, they find the economic potential of the Arctic as an appealing asset; in addition to studying the rapidly changing Arctic ecosystems, the countries are interested in using the resources and transportation opportunities of the region. **Asian states with the greatest interest to the Arctic region include China, Japan, South Korea, Singapore, and India**, which received observer status in the Arctic Council in 2013. Another example of the increased attention of non-Arctic countries to the region is **the active discussion of Brazil’s membership in the Arctic Council and the expansion of its national polar policy from Antarctic research to Arctic exploration.**

China calls itself a “Near-Arctic” state (近北极国家) and regards the region as an “international area,” so the country strives to actively participate in the international governance of the region: China has acted as an ad-hoc observer of the Arctic Council since 2007, and the country was given official observer status in 2013. The foundations of China’s Arctic policy are articulated in the 2018 «White Paper»: 1) understand, 2) protect, 3) develop the region, and 4) participate in its governance to ensure the common interests of the international community in the sustainable development of the Arctic. The detailed scope of China’s Arctic strategy and its analysis of its compliance with the UN SDGs are presented in Table 7.

Table 7 – Consistency of China’s Arctic policies with the UN Sustainable Development Goals

CHINA’S POLICY DIRECTIONS IN THE ARCTIC	UN SDGs
<p>1. DEEPENING THE STUDY OF THE ARCTIC REGION</p> <ul style="list-style-type: none"> – Interdisciplinary (including international) research in Arctic geology, ice and snow geography, hydrology, meteorology, sea ice, biology, ecology, geophysics, and marine chemistry – Monitoring and assessment of climate and environmental change in the Arctic – Construction of joint research stations in the Arctic – Conducting Arctic expeditions – Development of technological innovations, including maintenance of research stations, ships and other auxiliary platforms in the Arctic – Increased investment in scientific research – Promoting international cooperation in Arctic research 	<p>SDG 9 – Industry, Innovation and Infrastructure SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land SDG 17 – Partnerships for the Goals</p>
<p>2. PROTECTING THE ENVIRONMENT AND COMBATING CLIMATE CHANGE IN THE ARCTIC</p> <ul style="list-style-type: none"> – Strengthening control of marine and terrestrial pollution and international cooperation with other countries in this area – Preservation of the region’s biodiversity – Fulfilling international commitments to reduce emissions – Raising global awareness of the impact of climate change on the region 	<p>SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land</p>
<p>3. RATIONAL USE OF ARCTIC RESOURCES IN ACCORDANCE WITH INTERNATIONAL LAW</p> <ul style="list-style-type: none"> – Development of Arctic shipping lanes and route infrastructure, in particular the Polar Silk Road – Sustainable development of the region’s resources together with other Arctic states – Ensuring the safety of Arctic shipping – Development of oil, natural gas and minerals in the Arctic, provided that the ecological environment of the region is adequately protected – Development of renewable energy sources – Development of sustainable fisheries, including the establishment of an Arctic fisheries management organization or other institutional mechanisms based on the UN Convention on the Law of the Sea – Development of low-carbon tourism, ecotourism and responsible tourism 	<p>SDG 7 – Affordable and Clean Energy SDG 9 – Industry, Innovation and Infrastructure SDG 12 – Responsible Consumption and Production SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land</p>
<p>4. ACTIVE PARTICIPATION IN ARCTIC GOVERNANCE AND INTERNATIONAL COOPERATION</p> <ul style="list-style-type: none"> – Supporting the current Arctic governance system, based on the UN Charter and the UN Convention on the Law of the Sea – Encouraging efforts to build a «blue» economic corridor linking China and Europe through the Arctic Ocean – International cooperation in the development of maritime technology – Establishing partnerships between Arctic and non-Arctic states – Encouraging interaction between domestic research institutions and foreign think tanks and academic institutions 	<p>SDG 9 – Industry, Innovation and Infrastructure SDG 17 – Partnerships for the Goals</p>
<p>5. PROMOTING PEACE AND STABILITY IN THE ARCTIC</p> <ul style="list-style-type: none"> – Maintaining peace and stability and securing maritime trade in the region – Peaceful settlement of disputes over territorial and maritime rights and interests – Cooperation with Arctic states in the field of maritime and air search and rescue in emergency response 	<p>SDG 16 – Peace, Justice and Strong Institutions</p>

Source: compiled by the authors based on the China’s White Paper in the Arctic

India was granted formal observer status in the Arctic Council in 2013 together with other Asian countries. India's Arctic strategy, adopted in 2022, highlights the need to strengthen international cooperation and national capacity building in the region, and reflects such key national priorities in the region as climate change, economic and transport potential, and scientific research. Space research and the development of the technological base for their implementation have a special place in India's strategy in the Arctic (Table 8).

Table 8 – Consistency of India's Arctic Strategy with the UN SDGs

INDIA'S POLICY DIRECTIONS IN THE ARCTIC REGION	UN SDGs
<p>1. IMPROVEMENT OF INDIAN SCIENTIFIC RESEARCH IN THE ARCTIC</p> <ul style="list-style-type: none"> – Development of the existing research base on Spitsbergen, creation of additional research stations in the Arctic – Purchase of a specialised polar research ice class vessel and development of the capabilities to construct similar vessels; – Collaboration with the Arctic States in the field of research and Arctic biodiversity preservation – Arctic region climate change monitoring and assessment – Expanding opportunities for remote sensing in the Arctic – Conducting Arctic expeditions 	<p>SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land SDG 17 – Partnerships for the Goals</p>
<p>2. CLIMATE AND ENVIRONMENTAL PROTECTION</p> <ul style="list-style-type: none"> – Actions to increase control over marine and terrestrial ecosystem contamination – Arctic region biodiversity preservation – Honouring the international greenhouse gas emission reduction commitment – Raising global community's awareness of the climate change impact on the Arctic region 	<p>SDG 13 – Climate Action SDG 14 – Life Below Water SDG 15 – Life on Land</p>
<p>3. ECONOMIC DEVELOPMENT AND HUMAN CAPITAL</p> <ul style="list-style-type: none"> – Sustainable development of businesses in the Arctic – Sustainable development of regional resources along with other Arctic States; – Development of renewable energy sources in the Arctic – Increase in private investment in the Arctic – Development of projects on seed vault creation in the Arctic climate – Sustainable tourism promotion in the Arctic – Cultural and educational exchanges between indigenous people of the Arctic and Himalayan glaciers 	<p>SDG 7 – Affordable and Clean Energy SDG 9 – Industry, Innovation and Infrastructure SDG 14 – Life Below Water SDG 17 – Partnerships for the Goals</p>
<p>4. DEVELOPMENT OF TRANSPORTATION ROUTES IN THE ARCTIC</p> <ul style="list-style-type: none"> – Development of the Arctic shipping routes, route infrastructure, and the International North-South Transport Corridor in particular – Participation in projects on shipping adaptation to the International Maritime Organisation's requirements – Cooperation in shipbuilding with the partners experienced in construction of ice class vessels for polar expeditions 	<p>SDG 7 – Affordable and Clean Energy SDG 9 – Industry, Innovation and Infrastructure SDG 17 – Partnerships for the Goals</p>

<p>5. ACTIVE PARTICIPATION IN ARCTIC MANAGEMENT AND INTERNATIONAL COOPERATION</p> <ul style="list-style-type: none"> – Maintaining security and stability in the Arctic – Compliance with the International law – Partnership for Sustainable Development and promotion of multilateral regional management – Intensification of cooperation within the framework of international platforms 	<p>SDG 16 – Peace, Justice and Strong Institutions SDG 17 – Partnerships for the Goals</p>
<p>6. NATIONAL CAPACITY BUILDING IN THE ARCTIC REGION</p> <ul style="list-style-type: none"> – Expanding the pool of experts in the fields such as mineral exploration, the blue economy and Arctic tourism – Increasing the role of Indian research institutes and universities in the Arctic science and climate change research 	<p>SDG 17 – Partnerships for the Goals</p>

Source: compiled by the authors based on the India's Arctic Strategy

The experts also mentioned that the interests of Japan, the Republic of Korea and Singapore are determined by the prospects of developing the region's shipping routes, which are important both economically and in terms of national security; the need to develop the shipbuilding industry, including construction of Arctic-class ships and marine equipment; and the possibility of exploiting the region's mineral resources.

Japan remains one of the maritime powers with a strong interest in developing maritime trade routes around the world and, in particular, in the Arctic²⁰⁰. In the longer term the Northern Sea Route appears to Japan as a promising transport route, both because of its relatively shorter length (the route to Europe via the NSR is 40% shorter than the sea route through the Suez Canal²⁰¹) and because of security concerns. Japan's main foreign trade route passes through the South China Sea region, which has traditionally been the subject of disputes over the international legal regime of the sea between ASEAN countries and China²⁰². The potentially high-conflict geopolitical situation in the region necessitates the diversification of Japan's foreign trade routes.

Arctic mineral resources are also a key area of Japanese national interest in the context of energy security and diversification of energy imports: 80% of the country's oil imports come via the insecure southern route via the Middle East, so Japan seeks to diversify imports by using the Northern Sea Route, especially liquefied natural gas (LNG) from Russia²⁰³.

The Republic of Korea's interest in the Arctic is determined by the prospects of developing the region's navigation routes, which are important both economically and in terms of ensuring national security, the potential of the shipbuilding industry, including construction of Arctic-class ships and marine equipment, as well as the possibility of exploiting the region's mineral resources. In its turn, the use of the Northern Sea Route appears to be one of the ways for the Republic

200 Streltsov D. V. Japanese Policy in the Arctic // Comparative Politics. 2017. №1. P. 95.

201 Schøyen H., Bråthen S. The Northern Sea Route versus the Suez Canal: Cases from bulk shipping // Journal of Transport Geography. 2011. Vol. 19. № 4. P. 979.

202 Ibid.

203 Sinha U. K., Gupta A. The Arctic and India: Strategic Awareness and Scientific Engagement // Strategic Analysis. 2014. Vol. 38. № 6. P. 880.

of Korea to reduce the costs of goods transportation due to the shorter sea route compared to traditional routes, as well as a way to eliminate logistical risks²⁰⁴.

Singapore's interest in the Arctic, despite its rather remote location from the region, is based on the island state's high vulnerability to rising sea levels, which depend on melting ice in the Arctic. For this reason, Singapore is interested in sustainable and responsible management of the Arctic region²⁰⁵. Other priorities of Singapore's Arctic policy are the shipping capabilities of the region, as well as the prospects of developing transport infrastructure. In addition, Singapore is interested in exploiting the region's minerals and supplying its own technology and equipment to the Arctic.

For Singapore in particular, the development of the Northern Sea Route has certain risks: the increase in Arctic goods traffic potentially threatens the competitiveness of traditional southern European-Asian maritime routes, which may lead to a drop in Singapore's revenues, so involvement in Arctic management is an important mechanism for monitoring and influencing key processes and the international legal framework for the development of international maritime transport. Despite the continued interest of the Republic of Korea, Japan, and Singapore to engage in Arctic development and some accumulated potential for cooperation with Russia in this area, as the conflict in Ukraine escalated in 2022, the countries announced the suspension of joint activities with Russia and the Russian Federation put these states on the list of unfriendly²⁰⁶.

At the moment, **Brazil** is only minimally involved in the development of the Arctic region. Nevertheless, it has considerable accumulated potential for sustainable development, including in relation to areas beyond the South Polar Circle. Brazil's Antarctic policy is implemented through the Brazilian Antarctic Research Programme PROANTAR, established in 1982²⁰⁷. The programme aims to investigate the relationship between climate change in Antarctica and the Southern Hemisphere, monitoring the effects of global climate change on the Antarctic ecosystem, changes in Southern Ocean circulation and their implications for the Brazilian and South Atlantic climate, etc. Involvement in the exploration of the South Plus provides the foundation for Brazil to be embedded in various formats of cooperation and development in the Arctic. One of the incentives to expand its presence in the region appears to be the possibility of exploring gas and oil on the Arctic shelf, given Brazil's experience both in offshore oil production and in cooperation with Arctic countries. Although Brazil's activities in the Arctic are currently without an institutional framework, discussions on the prospects for the country's participation in the Arctic governance institutions have been open since 2010, and from 2022 the issue is part of the official national agenda²⁰⁸.

204 Epstein V. A. A., Tahaeva A. R. Arctic policy of South Korea // Society: Politics, Economics, Law. 2018. №7. Vol. 60.

205 Dershchuk A. Singapore's Interests in the Arctic // RIAC. [Electronic resource]. URL: <https://russiancouncil.ru/blogs/arctic/2326/> (accessed 10.08.2022).

206 Russian Government Decree of 29 October 2022 N 3216-r "On Amendments to the RF Government Decree of 05.03.2022 N 430-r". // Consortium "Consultant Plus". [Electronic resource]. URL: https://www.consultant.ru/document/cons_doc_LAW_430187/ (accessed: 20.05.2023)

207 Simões J. C. et al. Antarctic Science for Brazil: An action plan for the 2013–2022 period // Brasília, Ministério. 2013.

208 Secretaria Da Comissão Interministerial Para Os Recursos Do Mar. Resolução No 7, de 31 de Agosto de 2022.

5.2. Key Bilateral Projects and Initiatives Involving Russia, China, India and Brazil in the Arctic

In the past decade the range of joint projects between Russia and Asian and Latin American countries in the Arctic has expanded significantly, however, due to the geopolitical crisis and threats of secondary sanctions from Western countries, several joint projects between Russia and Japan, South Korea, and Singapore are suspended or postponed for an uncertain period of time.

Joint projects have been implemented in the fields of environmental protection, liquefied natural gas production, oil production and exploration, transport and logistics. Research plays a special role in Russia's collaboration with India, China and Brazil, while Brazil is generally less involved in bilateral cooperation in the Arctic in comparison with the other two countries.

5.2.1. Key Joint Projects between Russia and China in the Arctic

Russian-Chinese cooperation in the Arctic region covers a wide range of areas, including scientific exchange, tourism, transport and logistics, and oil and gas extraction, **but there is some disagreement between the countries over the vision of the legal status of the Arctic.** China recognizes the rights of the Arctic states to manage the Arctic, as established by the UN Convention on the Law of the Sea and the Svalbard Treaty but advocates greater access to resources and opportunities to develop the Arctic for all states, regardless of their territorial position. Russia takes the opposite view, allowing only the division of states into "Arctic" and "non-Arctic²⁰⁹" states, which emphasizes the exclusive rights of the Arctic states to manage the region and limits the possibilities for other states to interfere in the region.

Despite some divergence in the positions of Russia and China, cooperation continues and intensifies every year. In 2017, a permanent **Russian-Chinese working group** on cooperation in the Arctic was established to strengthen interaction between the states. It holds regular meetings between the parties to discuss opportunities for economic and scientific cooperation between the countries. In 2022, Russia and China signed a **Joint Statement on International Relations Entering a New Era and Global Sustainable Development²¹⁰**, which, among other issues, pointed to the need to deepen Arctic cooperation and joint development of Arctic routes. The following are the key areas and projects of Russia and China in the Arctic on the way to achieving the SDGs.

- – ongoing project
- – completed project
- – suspended project

209 Russia has no intention of delegating responsibility for the Arctic to other countries – envoy // TASS. 2020. [Electronic resource]. URL: <https://tass.com/politics/1168111> (accessed: 26.04.2022)

210 Joint Statement of the Russian Federation and the People's Republic of China on International Relations Entering a New Era and Global Sustainable Development // Official Network Resources of the President of Russia. 2022. [Electronic resource]. URL <http://kremlin.ru/supplement/5770> (accessed: 26.04.2022)



Energy

- Joint projects between Russian and Chinese companies for liquefied natural gas production in the Arctic territories – Yamal LNG (fig. 5), Arctic LNG-2 (fig. 5) (SDGs 7, 8, 9);
- Partnership between Russian and Chinese companies in Arctic geological exploration – drilling exploration wells in the Sea of Okhotsk and the Kara Sea on the Magadan-1 and Lisyansky sections²¹¹ (SDG 9);
- Joint projects to explore renewable energy potential for oil and gas production in the Arctic – agreement with Chinese companies to explore wind energy potential of the Vostok Oil project (fig. 6) (SDG 7).

211 China Oilfield Services Limited will perform drilling within the framework of the Rosneft and Statoil project in the Sea of Okhotsk // Oil and Capital.2.09.2015. [Electronic resource]. URL <https://oilcapital.ru/news/upstream/02-09-2015/china-oilfield-services-vypolnit-burenie-v-ramkah-proekta-rosnefti-i-statoil-v-ohotskom-more> (accessed: 26.04.2022)

Shareholder structure

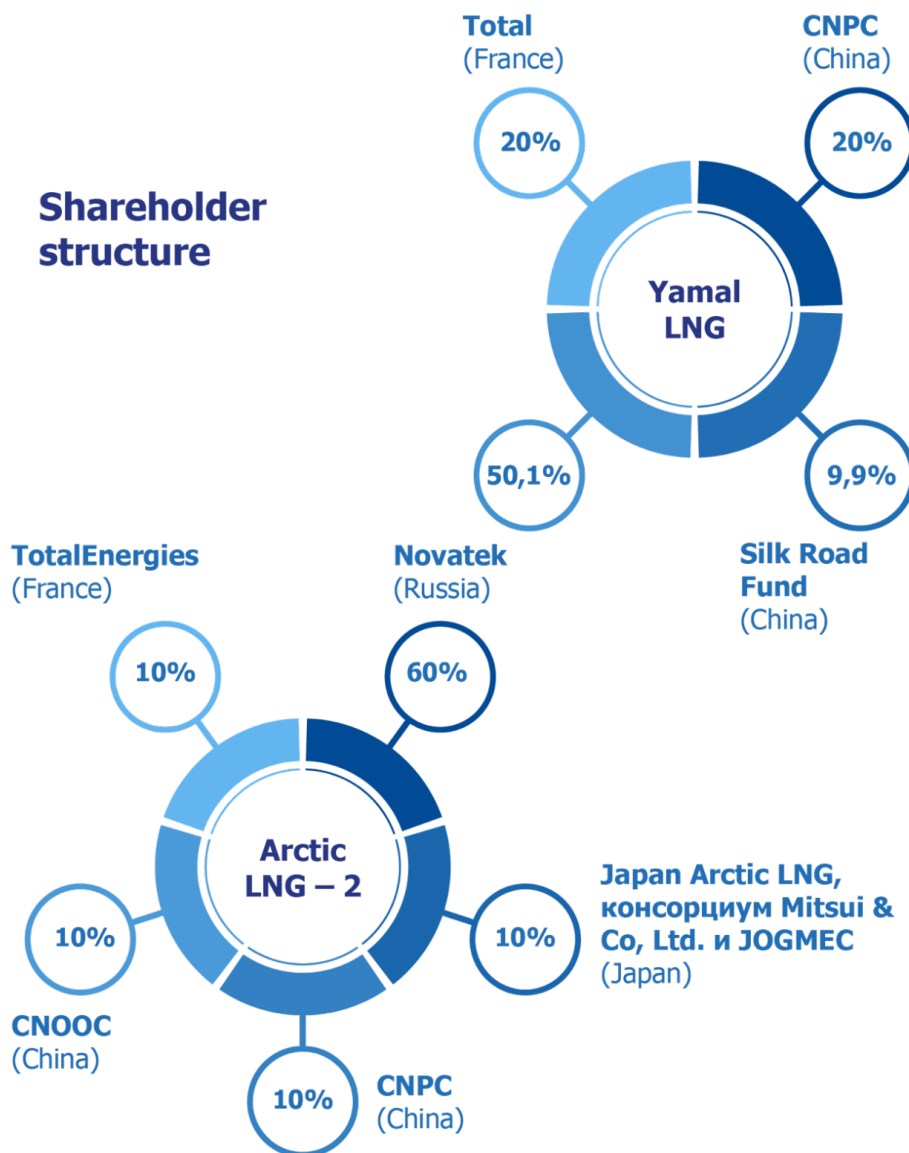


Figure 5. Shareholder structure of the projects Arctic LNG-2 and Yamal LNG

Source: About Project // Yamal LNG. 2023. [Electronic resource].

URL: <http://yamallng.ru/project/about/> (accessed: 20.05.2023)

Arctic LNG 2 signed loan agreements with international banks // NOVATEK. 11/30/2021. [Electronic resource].

URL: https://www.novatek.ru/common/upload/doc/ALNG2_International_banks_Rus.pdf (accessed: 20.05.2023)

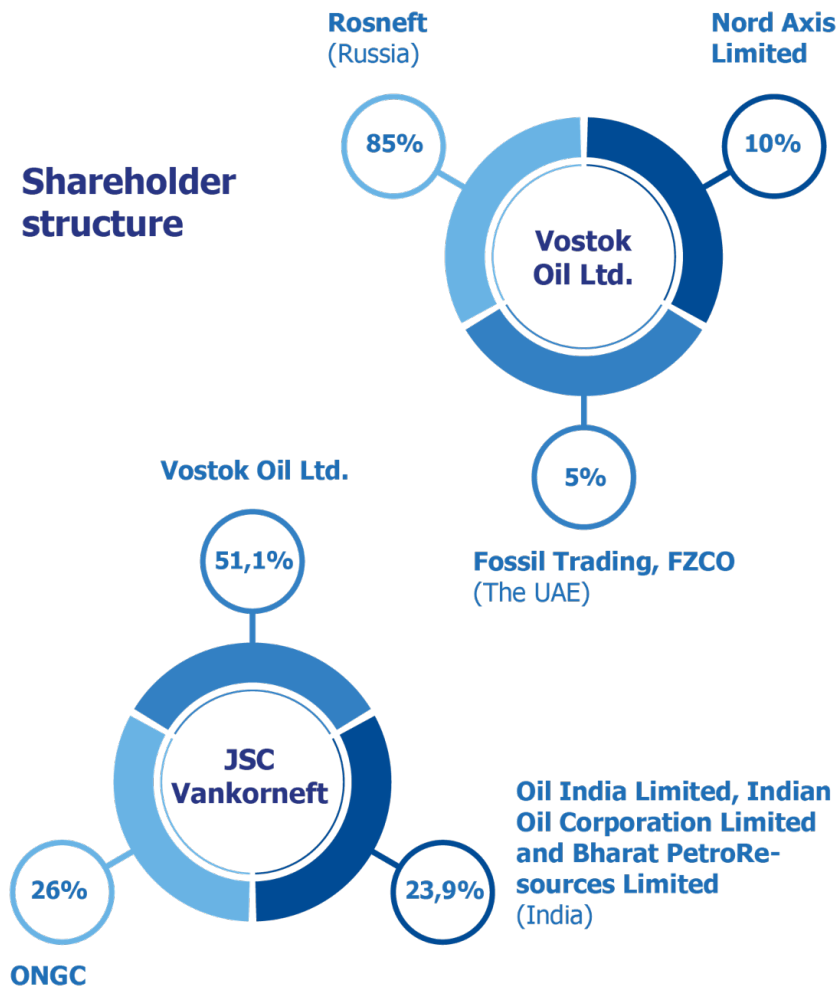


Figure 6. Shareholder structure of the projects Vankorneft and Vostok Oil Ltd.

Source: Consortium led by Vitol withdrew from the Vostok Oil project // PortNews. 12/30/2022. [Electronic resource]. URL: from <https://news.myseldon.com/ru/news/index/277041753> (accessed: 20.05.2023)

Rosneft transfers its stake in Vankorneft to Vostok Oil // Interfax. 04/09/2021. [Electronic resource]. URL: <https://www.interfax.ru/business/760359> (accessed: 20.05.2023).

Transport and Logistics

- Agreement on cooperation on the Northern Sea Route between the Ministry of the Russian Far East and Arctic Development and the State Development and Reform Committee of the PRC (2015): inclusion of the NSR in the “One Belt, One Road” initiative (SDG 9);
- China’s participation in providing transport equipment for joint projects with Russia – agreement between NOVATEK, China COSCO SHIPPING Corporation Limited, Sovcomflot and the Silk Road Fund to establish the Maritime Arctic Transport Enterprise (2019) (SDG 9);

Science and Education

- Coordination and support of bilateral cooperation between Chinese and Russian research centers provided by China-Russian Arctic Research Centre (SDG 17);
- Joint research on ice quality and Arctic ecosystem changes by the Shirshov Institute of Oceanology of the Russian Academy of Sciences and Qingdao National Laboratory for Marine Science and Technology²¹² (SDGs 13, 14);
- Activities of Russian-Chinese Scientific Centre on Arctic shipping, development of Arctic monitoring systems and preparation of transport corridor projects (SDGs 9, 13, 14);
- Projects on industrial development of the Arctic by the Russian-Chinese Polar Engineering and Research Centre in cooperation with Far Eastern Federal University (FEFU) and Harbin Polytechnic University (HPU) (since 2016²¹³) (SDGs 9, 13, 14);
- Participation of Chinese and Indian partners in construction of Russian year-round Arctic station “Snezhinka” (“Snowflake”) (SDGs 13, 17);
- Joint scientific expeditions (SDGs 13, 14): expedition led by the Chinese Arctic and Antarctic Administration with the support of the State Oceanic Administration of the PRC and the Russian Academy of Sciences (2016); expeditions of the research vessel Professor Molchanov in the format of the Arctic Floating University (since 2012);
- Joint Forums and Scientific Conferences – Roundtable “Russian-Chinese Cooperation in the Arctic: Opportunities and Limitations”, led by the Russian International Affairs Council (RIAC) and the Chinese Academy of Social Sciences (CASS) (2022²¹⁴) (SDG 17);
- Exchange programmes for students and teachers between universities (SDGs 4, 17): cooperation of Minin University with Anhui State Pedagogical University; Chinese-Russian joint N.E.

212 Russia and China will begin joint research in the Arctic // Shirshov Institute of Oceanology, Russian Academy of Sciences. P.P. Shirshov Institute of Oceanology of the Russian Academy of Sciences. [Electronic resource].

URL <https://ocean.ru/index.php/novosti-left/novosti-instituta/item/1311-rossiya-i-kitaj-v-arktike> (accessed: 27.04.2022)

213 Russia and China established a research center for the industrial development of the Arctic // Interfax.29.06.2016. [Electronic resource].

URL <https://www.interfax.ru/russia/530393> (accessed: 27.04.2022)

214 Russian and Chinese experts discussed the development of bilateral cooperation in the Arctic // Russian International Affairs Council.

21.03.2021. [Electronic resource]. URL: <https://russiancouncil.ru/news/rossiyskie-i-kitayskie-eksperty-obsudili-razvitie-dvustoronnego-sotrudnichestva-v-arktike/> (accessed: 27.04.2022)

Bauman Institute; joint MSU-PPI University in Shenzhen; Northern Arctic Federal University (NArFU) cooperation with Chinese partners.

Tourism

- Collaboration of Russian and Chinese travel companies to organize tourist voyages – voyages to the North Pole by the Chinese travel company Polar Beauty²¹⁵ (Jizhimei) aboard the Russian nuclear-powered icebreaker «50 Years of Victory» (SDGs 8, 9).

5.2.2. Key Joint Projects between Russia and India in the Arctic

India is one of Russia's key partners in the foreign policy arena, as demonstrated by the constructive engagement of the countries in the G20 and BRICS platforms. The countries have considerable accumulated cooperation capital in areas such as science, technology and innovation (especially space technology development), defense and the oil and gas industry. Investments in the oil and gas sector are aimed primarily at projects in the Russian Far East: India holds a 20% stake in the Sakhalin-1 project²¹⁶. The development of new logistics routes connecting Russia and India, such as the Vladivostok-Chennai transport corridor, opens a window of opportunity to strengthen cooperation between the countries in the Arctic as well.

The following are the key directions and projects of Russia and India in the Arctic towards the implementation of the SDGs.

- – ongoing project
- – completed project
- – suspended project

Energy

- Signing of a Memorandum of Understanding on Arctic offshore cooperation between Indian oil and gas company OVL (a subsidiary of Oil and Natural Gas Corporation, ONGC) and PJSC Rosneft (2014);
- Signing of a framework agreement on cooperation on the Arctic shelf between OVL and Gazprom Neft (2017);
- Participation of Indian state-owned companies Oil India Limited, Indian Oil Corporation Limited, Bharat PetroResources Limited, ONGC in the development of the Vankor field (northern Krasnoyarsk Territory, Russia) (fig. 6) (SDG 9 - Industry, Innovation and Infrastructure).

Transport and Logistics

- Russia-India cooperation on integrating the NSR into international transport corridors – North-South and Vladivostok-Chennai projects (SDGs 9, 17).

215 Outbound Tourism // Xingzhi Exploring Group. [Electronic resource]. URL: <http://en.exploring.cn/outbound-tourism/> (accessed: 27.04.2022)

216 India's ONGC plans to stay in Sakhalin-1 after operator change // Interfax, 18.10.2022. [Electronic resource].

URL: <https://www.interfax.ru/business/868341> (accessed: 18.06.2023)

Science and Education

- Roadmap for Cooperation in Science, Technology and Innovation between the Ministry of Science and Higher Education of the Russian Federation and the Ministry of Science and Technology of the Government of the Republic of India (2021);
- Cultural Exchange Programme between the Ministry of Culture of the Russian Federation and the Ministry of Culture of the Government of the Republic of India for 2021-2024²¹⁷.

5.2.3. Key Areas of Cooperation and Projects Between Russia, India, Republic of Korea and Singapore in the Arctic

- – ongoing project
- – completed project
- – suspended project

Oil Production and Exploration

- Memorandum of Understanding and Cooperation between Russia and the Republic of Korea on RoK's Participation in Mineral Resources Development Projects in the Russian Arctic (2017)²¹⁸;

LNG Production

- Japanese companies JGC and Chiyoda participate in the design and supply of equipment for the Yamal LNG project²¹⁹;
- Signing of Memoranda of Understanding between Japanese energy companies (JOGMEC and Seibu Gas) and PJSC NOVATEK for the use of the Hibiki LNG terminal in Japan (2018)²²⁰;
- Japan's national oil, gas and metals corporation JOGMEC and Mitsui & Co. acquire a 10% stake in Arctic LNG-2, but the companies pull out in 2022²²¹.

Transport and Logistics

- A cooperation agreement between the Japanese companies Mitsui O. S. K Lines, JBIC and Russian PJSC NOVATEK for LNG transshipment in Kamchatka and Murmansk (2019)²²².

217 Joint statement on the results of the 21st Russia-India summit "Russia-India: partnership for peace, progress and prosperity" // President of Russia. Official site. 06.12. 2021. [Electronic resource]. URL: <http://www.special.kremlin.ru/supplement/5745> (accessed 27.04.2022)

218 South Korean Kogas may take part in Arctic LNG 2 project // Construction. Ru. 22.06.2018. [Electronic resource]. URL: <https://russianconstruction.com/news-1/32343-south-korean-kogas-may-take-part-in-arctic-lng-2-project.html> (accessed: 10.08.2022)

219 Leksyutina Y. Russia's cooperation with Asian observers to the Arctic Council // The Polar Journal. 2021. P. 13.

220 NOVATEK and Saibu Gas sign memorandum on LNG terminal use // Pro-Arctic, 2018. [Electronic resource]. URL: <https://pro-arctic.ru/27/12/2018/news/35207> (accessed: 10.08.2022).

221 NOVATEK to clarify launch dates and ways of financing Arktik LNG 2 // Interfax. 21.04.2022. [Electronic resource]. URL: <https://www.interfax.ru/business/836126> (accessed: 10.08.2022)

222 NOVATEK, Mitsui O.S.K. Lines and JBIC signed a Cooperation Agreement // NOVATEK. 26.09.2019. [Electronic resource]. URL: https://www.novatek.ru/ru/press/releases/index.php?id_4=3447 (accessed 10.08.2022)

Shipbuilding

- Participation of South Korean companies Samsung Heavy Industries and Hyundai Heavy Industries in the design and construction of tankers, icebreakers and ice-class ships for the Arctic LNG-2 project;
- Construction of 15 ice-class LNG tankers at South Korean shipyards as part of the Yamal LNG project (2017)²²³;
- The construction by Singapore-based Keppel Corporation of two Arctic-class icebreakers (Varandey and Toboi) for Russia's Lukoil-Kaliningradmorneft²²⁴.

Science

- Cooperation between the Centre for Arctic Studies of Hokkaido University, the Russian Academy of Sciences and the North-Eastern Federal University²²⁵. The key research subject is Climate Change in the Arctic (SDG 13 - Combating Climate Change);
- Modelling of climate change by Japan's Earth Simulator Center, based on data from the GAME-Siberia project at the Spasskaya Pad research station in Yakutia²²⁶;
- Joint Russian-Japanese research and monitoring of black carbon emissions at Cape Baranova Ice Base ²²⁷.

5.3. Recommendations for Developing a Sustainable Development Cooperation Strategy for the Arctic with Asian and Latin American Countries

Despite existing foreign policy constraints in the form of threats of secondary sanctions and weakened bilateral relations with many Asian countries that previously showed interest in cooperation with Russia in the Arctic, including Japan, the Republic of Korea and Singapore, **the implementation of the Sustainable Development Goals in the region requires both strengthening engagement with old partners such as China and India, and seeking new strategic partners, which could be replaced by Latin American countries, in particular Brazil.**

Russia's cooperation with China, India and Brazil should primarily be based on

223 South Korea to build 15 tankers for Russia // TASS. 6.09.2017. [Electronic resource]. URL: <https://tass.ru/ekonomika/4536943> (accessed 10.08.2022)

224 Yeranosyan V. Singapore wants to engage in Arctic development // GoArctic. 2021. [Electronic resource]. URL: <https://goarctic.ru/politics/sin-gapur-khochet-zanyatsya-obustroystvom-arktiki/> (accessed 10.08.2022)

225 Cooperation on Arctic Research between Japan and Russia // International Arctic Science Committee. 2015. [Electronic resource]. URL: https://iasc.info/images/isira/national-reports/2015/Japan_Russia_Workshop_Oct_2014.pdf (accessed: 10.08.2022)

226 From climate to transport: what scientists from Russia and Japan are working on in the Arctic // TASS. 22.08.2017. [Electronic resource]. URL: <https://tass.ru/v-strane/4497357> (accessed 10.08.2022)

Russia and Japan work together in the arctic // Big Asia. 22.08.2017. [Electronic resource]. URL: https://bigasia.ru/en/content/news/science_and_education/russia-and-japan-work-together-in-the-arctic/ (accessed: 10.08.2022).

227 Visit to the Ice Base Cape Baranova research station in Russia // Arctic Challenge for Sustainability. 13.09.2028. [Electronic resource]. URL: <https://www.nipr.ac.jp/arcs/blog/en/2018/09/ice-base-cape-baranova.html> (accessed: 10.08.2022)

scientific research, also because it is less sensitive to foreign policy challenges. It is by unlocking the scientific potential of the countries that it will be possible to mitigate many of the climate risks that determine the future not only of the Arctic, but also of many other regions of the planet.

Further expansion of the portfolio of joint projects in the Arctic **may also be complemented by areas such as the development of Arctic resources, transport and logistics, energy, environmental protection and climate change, tourism, and support for small indigenous minorities of the North.**

A critical element of Russia's interaction with non-Arctic countries is the development of long-term partnership mechanisms that can function in times of crisis, given the severity of climate change in the Arctic region and its irreversible consequences.

The following is a list of potential areas and projects that Russia, China, India and Brazil can jointly implement in the field of sustainable development in the Arctic in the medium term.

Science and Education

- Joint deep-sea research on oceanography, climate change, its impact on sea ice, ocean acidification and biodiversity (SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land);
- Training programmes for ocean scientists and ocean technicians capable of working in the High North and familiar with new technical means of resource extraction in the Arctic (SDG 17 – Partnerships for the Goals);
- Organisation of joint Russian-Chinese, Russian-Indian, Russian-Brazilian expeditions to the Arctic (SDG 13 – Climate Action, SDG 14 – Life Below Water);
- Joint research activities at the Russian research station "Snezhinka" ("Snowflake") (SDG 13 – Climate Action);
- Development of the new technology platforms for interaction between Russian, Chinese, Indian and Brazilian experts, e.g. the use of the Chinese resource "Voov" for online events (SDG 17 – Partnerships for the Goals).

Environmental Protection and Combating Climate Change

- Using China's experience in studying glacier melting in Tibet and India in the Himalayas, experience in using space monitoring technologies (with the participation of the Research Institute of Aerospace Monitoring "Aerospace" and the Geophysical Center of the Russian Academy of Sciences, the Aerospace Information Research Institute of the Chinese Academy of Sciences, the Earth Remote Sensing Satellite Application Center of the Ministry of Natural Resources (LASAC) of India);
- Projects on biodiversity conservation based on experience of Russia, China and India within the Arctic Council Working Group on Conservation of Arctic Flora and Fauna (SDG 15).

Development of Arctic resources

- Involvement of Chinese, Indian and Brazilian companies in the “Vostok Oil” Arctic project;
- Further diversification the portfolio of investment projects in the Arctic “LNG-2” and “Yamal LNG” production, taking into account the withdrawal of some foreign partners from these projects;
- Development of rare and rare-earth metals that are used in the production of renewables equipment, in particular, nickel, cobalt, lithium (SDG 7 – Affordable and Clean Energy).

Green Energy

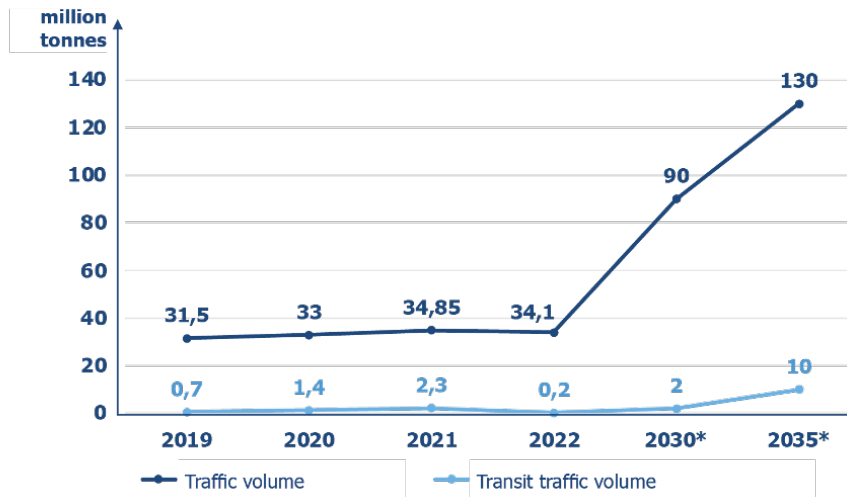
- Joint multilateral projects using hydrogen technology (SDG 7 – Affordable and Clean Energy);
- Projects to build wind and tidal power capacities to provide clean and affordable energy to the Arctic and reduce environmental and climate impacts (SDG 7 – Affordable and Clean Energy);
- Using the experience of Brazil, PRC and India in solar panel production and development of solar energy storage technologies (SDG 7 – Affordable and Clean Energy).

Supporting Indigenous Peoples

- Ensuring food security by building knowledge of potentially hazardous areas in the region using traditional knowledge of indigenous peoples and sustainable agricultural practices based on the experiences of China and Brazil;
- Organization of events and forums on indigenous culture in the Arctic region;
- Institutional support for Indigenous Minorities of the North, Siberia and the Far East, active engagement of Indigenous Minorities in Arctic governance (drawing on Brazil’s experience with indigenous peoples’ interests and establishment of the Ministry of Indigenous Peoples) (SDG 16 – Peace, Justice and Strong Institutions).

Transport and logistics

- Development of the NSR as a key transport artery in the Arctic, promotion of the “Ice Silk Road” initiative (SDG 9 – Industry, Innovation and Infrastructure) (fig. 7);



*Target values in accordance with the Strategy for the Development of the Arctic Zone of the Russian Federation and National Security until 2035

Figure 7. Volume of cargo transported in the waters of the Northern Sea Route

Source: Volume of cargo transportation in the waters of the Northern Sea Route // EMISS State Statistics. [Electronic resource]. URL: <https://fedstat.ru/indicator/51479> (accessed: 20.05.2023)

The Northern Sea Route // Investment portal of the Arctic zone of Russia. [Electronic resource]. URL: <https://arctic-russia.ru/northsearoute/> (accessed: 20.05.2023)

- Deepening partnerships for sustainable shipbuilding and expansion of the icebreaker fleet, implying measures to reduce pollutant emissions and greenhouse gases through the use of alternative fuels (in line with the International Maritime Organization principles) (SDG 13 – Climate Action);
- Attracting Chinese, Indian, Brazilian investment in the “Zvezda” shipbuilding complex which produces tankers, gas carriers, drilling platforms and ice-class vessels (SDG 9 – Industry, Innovation and Infrastructure);
- Ensuring maritime safety and organizing joint rescue missions along the Northern Sea Route;
- Improving navigation along the NSR through the use of shared satellite technology (SDG 9 – Industry, Innovation and Infrastructure);
- Development of international transport corridors “Vladivostok-Chennai” and “North-South” to realize the region’s transport potential (SDG 9 – Industry, Innovation and Infrastructure).

Tourism

- Launch an information portal about the Arctic region with potential tourist destinations in English, Chinese, Portuguese, Hindi, as well as simplified accommodation booking (e.g. Ostrovok.ru or new portals);
- Expansion of opportunities to use foreign payment systems, including Union Pay, RuPay, and the creation of a single BRICS payment system based on a basket of national currencies.

6. International Regimes as a Factor of Sustainable Development in the Arctic Region

International regime is a set of explicit and implicit principles, norms, rules, and decision-making procedures around which countries' expectations converge in a given area of international relations²²⁸. An international regime can be formal, that is, defined by specific international legal instruments, as well as informal, when it exists through a set of informal rules supported by international legal custom. Although international institutions are most often international regimes or part of them, the very notion of an international regime is broader and includes also non-institutionalized principles and rules. An expanded list of international and national legal acts regulating various aspects of interaction between actors in the Arctic is given in Annex 3.

Although international institutions are most often international regimes or part of them, the very notion of an international regime is broader and includes also non-institutionalized principles and rules. In turn, international organizations can be conventionally divided into two components: the first concerns those norms, rules, principles and decision-making procedures that it creates; the second represents bureaucratic institutions that do not directly relate to interstate interaction. In other words, any international organization contains an international regime.

6.1. International Governance of Marine Bioresources in the Arctic

In the Arctic region, there is a set of different international regimes whose functions are related to the marine bioresources' governance. The need for joint regulation of marine bioresources is due to the fact that fish and other marine commercial animals can migrate. As a result, excessive fishing by one or another state within its exclusive economic zone will inevitably lead to a decline of bioresources for all countries in the region. Such regimes are therefore a kind of response to the tragedy of commons. They are needed to remove the contradiction between the individual interests of one or another country aimed at maximizing its own benefits and the common interests of all actors, which is to preserve stocks in the long term by imposing limits on fishing for all participants.

The main goal of the Arctic international regulatory regimes for marine bioresources is sustainable use of these resources²²⁹. They also contribute to the conservation of fish and other marine animals in the arctic waters. In addition, joint operations and data exchange on anti-poaching and illegal fishing contribute to strengthening the role of international and national law as well as increasing the level of regional and international cooperation.

In the context of regional regimes governing fisheries in the Arctic, the Northwest Atlantic Fisheries Organization (NAFO) is of great importance. All Arctic countries are members of NAFO,

228 Krasner S. D. Structural causes and regime consequences: regimes as intervening variables //International organization. 1982. Vol. 36. No. 2. P. 200.

229 Rayfuse R. Regulating fisheries in the Central Arctic Ocean: much ado about nothing? //Arctic marine resource governance and development. 2018. P. 40.

with the exception of Finland and Sweden²³⁰. However, since the European Union is a member of NAFO and Sweden and Finland are members of the EU, they also have to abide by the rules and regulations set by NAFO. NAFO's area of operation is only partially Arctic and includes the northern Labrador Sea, Davis Strait, and the Bay of Baffin just south of 78 degrees North latitude. NAFO was established as a result of the Convention on Future Multilateral Cooperation in Northwest Atlantic Fisheries in 1978²³¹. Parties to the Convention were: Canada, Cuba, Iceland, USSR, Economic Commission for Europe, GDR, Norway. Later they were joined by Japan, South Korea, the United States, France, Ukraine, and the United Kingdom. There were attempt to adopt amendments to the Convention underlying NAFO in 2017. These amendments primarily included an ecosystem-based approach to regulating fisheries in the Northwest Atlantic Ocean, strengthening the obligation of member, flag and port countries, and the inclusion of a formal dispute resolution mechanism²³².

Another regional marine regime in the Arctic is set by the Northeast Atlantic Fisheries Commission, whose members include Denmark, the EU, Iceland, Norway, the Russian Federation, and the United Kingdom²³³. Also cooperating countries are the Bahamas, Canada, and Panama. As in the case of NAFO, its territory only partially concerns the Arctic, in particular the White Sea, the Barents Sea and the Norwegian Sea²³⁴. The organization was founded in 1980 as a result of the Convention on Future Multilateral Cooperation in Northeast Atlantic Fisheries²³⁵, which replaced the Northwest Atlantic Fisheries Convention of 1959²³⁶. Throughout the history of the organization there has been a number of attempts to reform the organization. In particular, in 2003 additions to the 1980 Convention were proposed by the European Union²³⁷, and in 2006 by Iceland²³⁸.

Within the waters of the Barents Sea there is a set of bilateral Russian-Norwegian agreements that form the regime of management of aquatic bioresources. In particular, in 1975 the Agreement between the USSR and Norway on cooperation in the fishing industry was signed²³⁹. This agreement also identified a bilateral institution to regulate fishing activities in the Barents Sea: the

230 Convention on Cooperation in the Northwest Atlantic Fisheries // Northern Atlantic Fisheries Organization. [Electronic resource]. URL: <https://www.nafo.int/Portals/0/PDFs/key-publications/NAFOConvention.pdf> (accessed: 05.05.2023)

231 Multilateral Convention on future multilateral co-operation in the North west Atlantic fisheries (with annexes). Concluded at Ottawa on 24 October 1978 // UN. [Electronic resource]. URL: <https://treaties.un.org/doc/Publication/UNTS/Volume%201135/volume-1135-I-17799-English.pdf> (accessed: 05.05.2023)

232 Convention on Cooperation in the Northwest Atlantic Fisheries // Northern Atlantic Fisheries Organization. [Electronic resource]. URL: <https://www.nafo.int/Portals/0/PDFs/key-publications/NAFOConvention.pdf> (accessed: 05.05.2023)

233 Press Release from the 2022 Annual Meeting of the North-East Atlantic Fisheries Commission // The North-East Atlantic Fisheries Commission. [Electronic resource]. URL: https://www.neafc.org/system/files/AM-2022_Press-statement.pdf (accessed: 05.05.2023)

234 Convention on Future Multilateral Cooperation In North-East Atlantic Fisheries // The North-East Atlantic Fisheries Commission. [Electronic resource]. URL: <https://www.neafc.org/system/files/Text-of-NEAFC-Convention-04.pdf> (accessed: 05.05.2023)

235 Ibid.

236 The North-East Atlantic Fisheries Convention, 1959 // Polar record. [Electronic resource]. URL: <https://www.cambridge.org/core/journals/polar-record/article/abs/northeast-atlantic-fisheries-convention-1959/5CE6A1E968C56D9E0AA963A45A3FC9> (accessed: 05.05.2023)

237 EU proposal to amend the Convention, 2004 // The North-East Atlantic Fisheries Commission. [Electronic resource]. URL: <https://www.neafc.org/system/files/EU-proposal-to-amend-the-Convention-2004.pdf> (accessed: 05.05.2023)

238 Icelandic proposal to amend the Convention, 2006 // The North-East Atlantic Fisheries Commission. [Electronic resource]. URL: <https://www.neafc.org/system/files/Icelandic-proposal-to-amend-the-Convention-2006.pdf> (accessed: 05.05.2023)

239 Norway and Union of Soviet Socialist Republics Agreement on co-operation in the fishing industry, 1975. // UN. [Electronic resource]. URL: <https://treaties.un.org/doc/Publication/UNTS/Volume%20983/volume-983-I-14331-English.pdf> (accessed: 05.05.2023)



Joint Russian-Norwegian Fisheries Commission, which at annual meetings determines the quotas for fish catches in the Barents Sea. In 1976, the Agreement between Norway and the USSR on Joint Fisheries Relations was signed²⁴⁰. Both documents recognized all the previous and described above agreements concerning the regulation of fisheries, both at the level of text and at the level of the provisions enshrined in the documents.

At the same time, there are inevitably a number of internal controversies within the regimes determining fishing quotas: for example, the conflict between Iceland, Greenland and the Faroe Islands on the one hand, and Norway and the EU on the other, which concerns the quota setting for mackerel fisheries within the North-East Atlantic Fisheries Organization²⁴¹. The conflict started in 2007, when Iceland, Greenland and the Faroe Islands unilaterally raised their mackerel catch quotas, causing resentment from Norway and the EU. In 2014, the conflict was put on hold as mackerel stocks in this part of the Atlantic Ocean increased, allowing Norway and the EU to recognize the quota increase from Iceland, Greenland, and the Faroe Islands. In 2019, however, the conflict resumed as Greenland and Iceland again raised their quotas, causing discontent on the part of Norway, the Faroe Islands, and the EU.

The other side of international regimes controlling fishing activities at the regional and bilateral level is the fight against poaching and uncontrolled fishing. In this area, countries exchange data and also carry out joint activities to combat offenders.

In this context, Russian-American bilateral agreements concerning the regulation of fisheries in the Bering Sea are important. In 1988, the U.S.-Soviet Agreement on Joint Fisheries Relations was signed²⁴². It involved the creation of a U.S.-Soviet and later U.S.-Russian intergovernmental fisheries advisory committee. Moreover, Russia and the United States signed the Agreement on Cooperation to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing in 2015²⁴³.

Some territories of the Arctic Ocean do not belong to the exclusive economic zone of any country, which means that they are a part of the high seas. The largest such area is the central part of the Arctic Ocean. There are no restrictions on the extraction of natural resources within the high seas' areas. Due to the fact that marine animals can move to such areas as well, the problem of overfishing in them remains. Immediately after the signing of the Ilulissat Declaration, a number of researchers highlighted the importance to formulate universally recognized rules and principles for

240 Union of Soviet Socialist Republics and Norway Agreement concerning mutual relations in the field of fisheries, 1976. // UN. [Electronic resource]. URL: <https://treaties.un.org/doc/Publication/UNTS/Volume%201157/volume-1157-I-18273-English.pdf> (accessed: 05.05.2023)

241 Gray T. Normative theory of international relations and the 'mackerel war' in the North East Atlantic // Marine Policy. 2021. Vol. 131. P. 104620. Totland O. A. Makrellkonflikten og strategisk klimafornekning // Internasjonal Politikk. 2020. Vol. 78. №. 2. P. 142-166.

242 Agreement between the government of the United States of America and the government of the Union of Soviet Socialist republics on mutual fisheries relations // Ecolex. [Electronic resource]. URL: <http://www2.ecolex.org/server2neu.php/libcat/docs/TRE/Full/Other/TRE-151767.pdf> (accessed: 05.05.2023)

243 Decree of the Government of the Russian Federation dated September 2, 2015 №1718-r "On signing the Agreement between the Government of the Russian Federation and the Government of the United States of America on cooperation for the prevention, deterrence and elimination of illegal, unreported and unregulated fishing. // Federal Agency for Fishery. [Electronic resource].

URL: https://fish.gov.ru/wp-content/uploads/documents/documenty/akty_pravitelstva/rasp_prav_1718.pdf (accessed: 05.05.2023)

the regulation of fishing activities in the central part of the Arctic Ocean²⁴⁴. As a result, in 2015, the five Arctic coastal states (the United States, Canada, Russia, Norway, and Denmark) signed the Oslo Declaration, in which they agreed to voluntarily renounce commercial fishing in the central Arctic Ocean until appropriate science-based measures were adopted. As was the case with the signing of the Ilulissat Declaration, the signing of the Oslo Declaration was received negatively by other Arctic states without access to the Arctic Ocean²⁴⁵. Although the natural and climatic conditions of the central Arctic Ocean currently complicate fishing activities, the absence of important regional countries as well as other stakeholders within the regime objectively reduced its ability to mitigate the risks associated with overexploitation of resources in the region.

As a result, in 2018 the Agreement on the Prevention of Unregulated Fishing on the High Seas in the Central Arctic Ocean was signed²⁴⁶. First, this agreement, unlike the Oslo Declaration, is legally binding, and second, a wider range of actors (including coastal Arctic countries as well as Iceland, China, Japan, South Korea, and the European Union) were involved in the regime. Thus, the regime created by this treaty has greater potential for the conservation of marine bioresource stocks than the regime formed by the Oslo Declaration. The agreement has been ratified by all parties and entered into force in June 2021.²⁴⁷

6.2. International Environmental Governance in the Arctic

At the regional level, the functions of international regimes related to the regulation of environmental and climatic issues can be roughly divided into several groups. First, regimes aimed at promoting scientific research and implementing projects to protect the environment in the Arctic, and second, regimes defining specific rules to protect rare animal species and respond to emergencies that may threaten the environment.

In the context of issues related to the promotion of environmental and climate research and environmental protection projects, the Arctic Council plays a key role. Historically, the AC was formed precisely as an environmental and climatic international regime. In 1991, Arctic countries adopted the Arctic Environmental Protection Strategy (AEPS)²⁴⁸, which presented rather general provisions rather than specific rules and regulations. In addition, the strategy gave considerable attention to scientific cooperation for the protection of the environment. A key element of the strategy

244 Koivurova T., Molenaar E. J. International governance and regulation of the marine Arctic //Oslo: WWF International Arctic Programme. 2009.
Rayfuse R. G. Melting moments: The future of polar oceans governance in a warming world //Review of European Community & International Environmental Law. 2007. Vol. 16. №. 2. P. 196-216.

Rayfuse R. G. Regional allocation issues or zen and the art of pie cutting //UNSW Law Research Paper. 2007. №. 2007. P.10.

245 Rayfuse R. Regulating fisheries in the Central Arctic Ocean: much ado about nothing? //Arctic marine resource governance and development. 2018. C. 42.

246 An Introduction To: The International Agreement to Prevent Unregulated Fishing In The High Seas Of The Central Arctic Ocean // Arctic council. [Electronic resource]. URL: <https://arctic-council.org/news/introduction-to-international-agreement-to-prevent-unregulated-fishing-in-the-high-seas-of-the-central-arctic-ocean/> (accessed: 05.05.2023)

247 Ibid.

248 Arctic Environmental Protection Strategy // Arctic portal. [Electronic resource]. URL: http://library.arcticportal.org/1542/1/artic_environment.pdf (accessed: 05.05.2023)

was the establishment of the Arctic Monitoring and Assessment Program (AMAP), whose objectives are to analyze and assess the region's environmental pollution processes as well as climate change processes in the Arctic²⁴⁹. The Arctic Council itself was established in 1996 on the basis of Arctic Monitoring and Assessment Program with the signing of the Ottawa Declaration²⁵⁰.

Environmental protection, environmental security, and climate change in the Arctic largely depend on research activities, so it seems necessary to consider the Agreement on Enhancing International Scientific Cooperation in the Arctic, signed under the auspices of the Arctic Council in 2017²⁵¹.

The Arctic Council's activities are mostly focused on implementing international research projects aimed at collecting and sharing data that relate to the physical, chemical, and geographic state of the Arctic environment, as well as the transformation of the Arctic ecosystem. Thus, the Arctic Council is not aimed at solving direct problems related to climate change or threats to the Arctic environment, but at raising awareness of these processes.

At the bilateral level, an international regime related to the protection of the Arctic ecology and climate with Russian participation has developed in the Barents Sea. In 1992, Russia and Norway signed an Agreement on cooperation in the field of environmental protection²⁵². The treaty was aimed at developing cooperation in the field of environmental protection between Russia, including the marine environment. To promote cooperation, a Russian-Norwegian Mixed Commission on Environmental Cooperation was established, and every three years a work program is drawn up by scientists and authorities from both countries. For the most part, the activities of the Norwegian-Russian Mixed Commission on Environmental Cooperation have focused on joint research projects, as well as bilateral exchanges of scientific data²⁵³.

In addition, bilateral cooperation between Russia and the United States on nuclear waste management in the Arctic has been developed in the 2000s²⁵⁴. Nevertheless, by now the cooperation has been finished.

At the level of bilateral international interaction, a significant place is given to strengthening scientific dialogue and the exchange of scientific data. For example, within the framework of the Russian-Norwegian Mixed Commission on Cooperation in the Field of Environmental Protection,

249 The Arctic Monitoring and Assessment Programme // AMAP. [Electronic resource]. URL: <https://www.amap.no/about> (accessed: 05.05.2023)

250 Declaration on the Establishment of the Arctic Council, September 19, 1996 // Electronic Collection of Legal and Regulatory and Technical Documents. [Electronic resource]. URL: <https://docs.cntd.ru/document/901880137> (accessed: 05.05.2023)

251 Agreement on Enhancing International Arctic Scientific Cooperation // Arctic council. [Electronic resource]. URL: https://oaarchive.arctic-council.org/bitstream/handle/11374/1916/EDOCs-4288-v2-ACMMUS10_FAIRBANKS_2017_Agreement_on_Enhancing_International_Arctic_Scientific_Cooperation.pdf?sequence=2&isAllowed=y (accessed: 05.05.2023)

252 Overenskomst mellom Kongeriget Norges regjering og den Russiske Føderasjons regjering om samarbeid på miljøvernområdet // Regjeringen. [Electronic resource]. URL: https://www.regjeringen.no/contentassets/66b54513e82d453c88f030135513d582/overenskomst_av_1992_no.pdf (accessed: 05.05.2023)

253 Norwegian-Russian cooperation on the marine environment // Norsk Polarinstitutt. [Electronic resource]. URL: <https://www.npolar.no/en/themes/international-cooperation-in-the-arctic/norwegian-russian-cooperation-on-the-marine-environment/> (accessed: 05.05.2023)

254 Sawhill S. G. Cleaning-up the Arctic's cold war legacy: nuclear waste and Arctic military environmental cooperation // Cooperation and Conflict. 2000. Vol. 35. №. 1. P. 5-36.

representatives of the scientific communities took part in the work of the institute even at the level of formal principles of regime functioning, developing with representatives of the authorities' programs of joint activities within the framework of the commission.

As for specific rules and regulations aimed at protecting the environment, at the level of regional international regimes, the Agreement on the Protection of Polar Bears, signed in 1973, should be mentioned²⁵⁵. The five countries where polar bears live became parties to the agreement: Canada, Norway, Denmark, the USSR (and later Russia), and the United States. This agreement banned the hunting, killing and taking of polar bears, except in situations where polar bears might endanger human life or health, or for scientific purposes, or by indigenous peoples using traditional hunting methods²⁵⁶. The treaty also implied biennial meetings²⁵⁷.

In 2013, the International Polar Bear Protection Forum signed a ministerial declaration of the agreement's participating countries²⁵⁸, in which the parties to the agreement reaffirmed their commitment to the principles of the 1973 treaty. In addition, in 2015, the Circumpolar Action Plan was released for the period up to 2025²⁵⁹.

Also in 2013, under the auspices of the AC, the Agreement on Cooperation in Offshore Oil Pollution Preparedness and Response in the Arctic (MOSPA) was signed²⁶⁰. This agreement is legally binding and was the second such agreement adopted under the auspices of the AC. Among other things, MOSPA contains quite specific rules and regulations that define the procedure for states to respond to and deal with possible oil spills in the Arctic marine environment.

Because of the particular relevance of environmental and climate issues to the Arctic, such international regimes are of great importance to the regional cooperation agenda and can serve as a platform for strengthening cooperation, including in areas not directly related to the region. Moreover, the formulation of rules and norms in such regimes leaves wide space for countries to interpret them, which reduces the likelihood of potential interstate conflict within a regime. As a result, such regimes are even more attractive as a venue for enhanced interaction. In addition, because of the global nature of environmental and climate issues, and because the Arctic region plays a key role in global climate change processes, these regimes help to raise the profile of the Arctic and the Arctic states within the global community.

255 Agreement on the Conservation of Polar Bears // Arctic portal. [Electronic resource].

URL: <http://library.arcticportal.org/1867/1/Agreement-on-the-Conservation-of-Polar-Bears.pdf> (accessed: 05.05.2023)

256 Ibid.

257 Agreement on Conservation of Polar Bears - Rules of Procedure // Polar Bear range states. [Electronic resource].

URL: <https://polarbearagreement.org/resources/rules-of-procedure-3/download> (accessed: 05.05.2023)

258 Declaration of the Responsible Ministers of the Polar Bear Range States // Polar Bear range states. [Electronic resource].

URL: <https://polarbearagreement.org/resources/agreement/declaration> (accessed: 05.05.2023)

259 Circumpolar Action Plan (CAP), 2015-2025 // Polar Bear range states. [Electronic resource].

URL: <https://polarbearagreement.org/resources/circumpolar-action-plan/download> (accessed: 05.05.2023)

260 Agreement on cooperation in preparedness and response to oil pollution at sea in the Arctic // Arctic council. [Electronic resource].

URL: https://oaarchive.arctic-council.org/bitstream/handle/11374/529/EDOCS-2068-v1-ACMMSE08_KIRUNA_2013_agreement_on_oil_pollution_preparedness_and_response_signedAppendices_Original_130510.PDF?sequence=6&isAllowed=y (accessed: 05.05.2023)

6.3. International Governance of Arctic Transport Routes

International regimes aimed at regulating transport and logistics are primarily concerned with issues related to strengthening cooperation in maritime search and rescue. Two areas can be distinguished within this area. First, at the regional level, there is a regime that defines the procedures for maritime search and rescue, including the use of aircraft. The purpose of this regime is to formulate general principles for search and rescue at sea within the Arctic region, as well as to define the responsibilities of the Arctic countries in this area. In other words, it aims to increase the effectiveness of search and rescue at sea, as well as to eliminate possible international legal obstacles in the implementation of search and rescue operations. Secondly, within the framework of the activities of the Arctic Council, the Coast Guard Forum, as well as at the bilateral Russian-Norwegian level, cooperation between the agencies performing coast guard functions of the Arctic countries is carried out. In particular, there are joint exercises of coast guards aimed at practicing search and rescue scenarios, as well as mechanisms for data exchange, including real-time data exchange in case of various emergencies.

A key multilateral regime for the Arctic region related to the regulation of shipping is the International Code for Ships Operating in Polar Waters (Polar Code)²⁶¹, adopted by the International Maritime Organization²⁶² (IMO) in 2014 and entered into force in 2017²⁶³. The Polar Code introduced a wide range of rules and regulations governing navigation in polar waters. In particular, the Polar Code presented rules and regulations concerning technical requirements for ship design, requirements for training of seafarers, and organization of search and rescue at sea. In addition, the Polar Code addressed environmental and climatic safety issues arising in the course of ship operations in polar waters. It also contains both mandatory norms and rules of a recommendatory nature.

Directly related to the Arctic region, the international regime aimed at regulating transport and logistics is the Agreement on Cooperation in Aeronautical and Maritime Search and Rescue in the Arctic²⁶⁴. This agreement was adopted in 2011 and was the first legally binding treaty adopted under the auspices of the Arctic Council. For the most part, the agreement defined issues of direct cooperation, but not specific rules and regulations that pertain to the implementation of aviation and maritime search and rescue at sea. This is due to the fact that the rules related to the procedures for search and rescue at sea are defined at the national level. On the other hand, this agreement plays an important role in terms of strengthening cooperation between the Arctic countries in this area, including the exchange of information and data, including in real time, facilitation of access of

261 International Code for Ships Operating in Polar Waters (Polar Code) // IMO. [Electronic resource]. URL: <https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED.pdf> (accessed 05.05.2023)

262 Polar code agreed to prevent Arctic environmental disasters /// The Guardian. [Electronic resource]. URL: <https://www.theguardian.com/environment/2014/nov/21/polar-code-agreed-to-prevent-arctic-environmental-disasters> (accessed 05.05.2023)

263 Shipping in polar waters // IMO. [Electronic resource]. URL: <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Polar-default.aspx> (accessed 05.05.2023)

264 Agreement on cooperation in aviation and maritime search and rescue in the Arctic // Arctic council. [Electronic resource]. URL: https://oaarchive.arctic-council.org/bitstream/handle/11374/531/EDOCS-1912-v1-ACMMDK07_Nuuk_2011_Arctic_SAR_Agreement_unsigned_RU.PDF?sequence=6&isAllowed=y (accessed 05.05.2023)

rescue vessels and aircrafts to the disaster areas located in the territorial waters of the Arctic countries, as well as on conducting joint exercises. In addition to this agreement, the working group on prevention, preparedness and response to emergencies implemented a number of projects aimed at strengthening cooperation in the field of search and rescue at sea, including joint exercises²⁶⁵.

Another regional international regime focused on cooperation in maritime search and rescue is the Arctic Coast Guard Forum, established in 2015. The forum was created during a meeting of Arctic coastal nations in the United States, as well as a Joint Statement of Intent to Strengthen Cooperation among Coast Guard Agencies and the forum's terms of reference were signed²⁶⁶. The chairmanship of the forum changes every two years, at the same time as the chairmanship of the Arctic Council, with the country chairing the AC also chairing the Arctic Coast Guard Forum²⁶⁷. In addition, the heads of the coast guard agencies of the participating countries were supposed to meet annually, but working group meetings could be held more frequently as needed. The work within the forum was to be carried out in conjunction with the work within the working group on emergency prevention, preparedness and response of the AC²⁶⁸. In other words, the activities of the Arctic Coast Guard Forum were to enhance the effectiveness of the AC as an international regime. The activities of this forum also included the Arctic Guardian exercise in 2017 and the Polaris exercise in 2019.²⁶⁹

Interaction between the coast guards of Norway and the Russian Federation in the Barents Sea plays a key role at the bilateral level²⁷⁰. In 2008, a memorandum of cooperation on control was signed between the Norwegian Fisheries Administration, the Norwegian Border Guard Service, Roskomrybolovstvo and the Border Guard Service of the Russian Federation²⁷¹. The memorandum primarily implied cooperation in information and data exchange between the above ministries. Cooperation between the coast guards of Russia and Norway is closely connected with the issues of fishing in the Barents Sea, in particular, at the bilateral level they discussed issues related to the order of inspection of fishing vessels, etc.²⁷²

265 International Cooperation to Develop Arctic Emergency Preparedness // EPPR. [Electronic resource]. URL: <https://eppr.org/projects/arctic-rescue/> (accessed 05.05.2023)

266 Joint Statement of the Intent to Further Develop Multilateral Cooperation of Agencies Representing Coast Guard Functions // Arctic portal. [Electronic resource]. URL: <https://s3.documentcloud.org/documents/2497060/joint-statement-draft-25-march-no-track-changes.pdf> (accessed 05.05.2023)

267 Todorov A. On the work of the Arctic Forum of Coast Guards (in Russian) // Arctic Review. 2018. №. 4. P. 66.

268 Østhagen A. Coast guards and ocean politics in the Arctic. Singapore: Palgrave Macmillan, 2020.

269 Arctic Guardian Exercise in Search and Rescue and Marine Environmental Response in the Arctic // The Arctic Coast Guard Forum (ACGF). [Electronic resource]. URL: <https://www.arcticcoastguardforum.com/news/arctic-guardian-acgfs-first-operational-exercise-succesfully-completed> (accessed 05.05.2023)

Live Exercise Polaris 2019 // The Arctic Coast Guard Forum (ACGF). [Electronic resource].

URL: <https://www.arcticcoastguardforum.com/news/live-exercise-polaris-2019> (accessed 05.05.2023)

270 Østhagen A. Op. cit. P. 45.

271 Memorandum om Samarbeidsordninger om Kontroll Mellom det Norske Fiskeridirektoratet, den Norske Kystvakten, Barentsevo-Belomorskoe Territoriale Avdeling av Goskomrybolovstvo og Grensedirektoratet i Russlands Føderale Sikkerhetstjeneste (PU FSB RF) i Murmansk fylke // Regjeringen. [Electronic resource]. URL: <https://www.regjeringen.no/globalassets/upload/fkd/vedlegg/kvotavtaler/2009/rusland/vedlegg-14-16101641---endelig.pdf> (accessed 05.05.2023)

272 Østhagen A. Op. cit. P. 52.

6.4. Territorial Disputes in the Arctic Region

There has been a range of territorial disputes in the Arctic, some of which remain until now. Most territorial disputes in the Arctic concern issues related to defining the outer limits of the exclusive economic zone (EEZ) and the continental shelf of the coastal states.

The EEZ includes maritime spaces within 200 nautical miles of those lines from which the boundaries of a state's territorial waters are determined. Within the EEZ, coastal states have exclusive rights to explore and extract natural resources. There are three major areas in the Arctic that do not fall within the EEZ of any of the countries. The first is the area in the central Arctic Ocean. The second is the area in the Barents Sea, which is bounded by the Russian and Norwegian EEZ (the Loophole). The third is the water area in the Norwegian Sea, bounded by the EEZs of Norway, Iceland, the Faroe Islands and Greenland (the Banana hole)²⁷³.

The continental shelf, in turn, includes the seabed and subsoil of submarine areas that are outside the territorial waters of coastal states. Exclusive continental shelf rights primarily extend within 200 nautical miles. However, if the underwater continental margin extends beyond 200 nautical miles, a state's continental shelf rights may extend beyond this line. The process of determining the external limit of the continental shelf is accompanied by recommendations from the relevant UN Commission. At present the Arctic states' continental shelf boundaries in the central Arctic Ocean remain undetermined. Several Arctic countries have made submissions for review of the continental shelf boundary in the Arctic Ocean. In particular, Russia has made submissions in 2001, 2015 and 2023²⁷⁴, and Canada in 2013 and 2019²⁷⁵. Denmark has made submissions concerning the Arctic in 2013 and 2014²⁷⁶, Norway in 2009²⁷⁷. Danish, Canadian, and Russian applications concerning the

273 The Loophole and the Banana Hole // The Barents watch. [Electronic resource].

URL: <https://www.barentswatch.no/en/articles/the-loophole-and-the-banana-hole/> (accessed 30.06.2023)

274 Partial revised submission of the Russian Federation to the Commission on the Limits of the Continental Shelf of the Russian Federation in the Arctic Ocean // UN. [Electronic resource]. URL: https://www.un.org/Depts/los/clcs_new/submissions_files/rus01_rev15/2015_08_03_Exec_Summary_Russian.pdf (accessed 05.05.2023).

Receipt of the submission made by the Russian Federation to the Commission on the Limits of the Continental Shelf // UN [Electronic resource]. URL: https://www.un.org/Depts/los/clcs_new/submissions_files/rus01/RUS_CLCS_01_2001_LOS_English.pdf (accessed 05.05.2023)

Partial revised submission by the Russian Federation regarding the continental shelf of the Russian Federation in the south-eastern part of the Eurasian basin of the Arctic Ocean // UN. [Electronic resource]. URL: https://www.un.org/Depts/los/clcs_new/submissions_files/rus02_rev23/23rusrev2r.pdf (accessed 05.05.2023)

275 Partial Submission of Canada to the Commission on the Limits of the regarding its continental shelf in the Atlantic Ocean // UN (official site). [Electronic resource]. URL: https://www.un.org/Depts/los/clcs_new/submissions_files/can70_13/es_can_en.pdf (accessed 05.05.2023)

Partial Submission of Canada to the Commission on the Limits of the Continental Shelf regarding its continental shelf in the Arctic Ocean // UN. [Electronic resource].

URL: https://www.un.org/Depts/los/clcs_new/submissions_files/can1_84_2019/CDA_ARC_ES_EN_secured.pdf (accessed 05.05.2023)

276 Partial Submission of the Government of the Kingdom of Denmark together with the Government of Greenland to the Commission on the Limits of the Continental Shelf // UN. [Electronic resource].

URL: https://www.un.org/Depts/los/clcs_new/submissions_files/dnk68_13/DNK2013_ES.pdf (accessed 05.05.2023)

Partial Submission of the Government of the Kingdom of Denmark together with the Government of Greenland to the Commission on the Limits of the Continental Shelf // UN (official site).

URL: https://www.un.org/Depts/los/clcs_new/submissions_files/dnk76_14/dnk2014_es.pdf (accessed 05.05.2023)

277 Continental Shelf Submission of Norway in respect of areas in the Arctic Ocean, the Barents Sea and the Norwegian Sea // UN (official site). [Electronic resource]. URL: https://www.un.org/Depts/los/clcs_new/submissions_files/nor06/nor_exec_sum.pdf (accessed 05.05.2023)

continental shelf in the central Arctic Ocean overlap. On 6 February 2023 Russia's application to extend the outer limit of its continental shelf in the central Arctic Ocean was mainly approved by the Commission²⁷⁸.

Issues related to the definition of the outer limits of the continental shelf do not in fact relate to territorial disputes, because even though the claims of countries may overlap, it is common for all states to recognize the international legal order and mechanism for defining the outer limits based on scientific data. In addition, it is currently almost impossible to conduct extraction of minerals in the natural and climatic conditions of the central Arctic Ocean. In this regard, the issues of defining the shelf boundaries are not highly sensitive.

In the context of defining the external borders of the EEZ and the continental shelf, a number of territorial disputes that have existed in the Arctic should be noted. In particular, in the 1980s, there was a dispute between Norway and Denmark over the demarcation line defining the countries' EEZ between Greenland (Denmark) and Jan Mayen Island (Norway)²⁷⁹. In 1988 Denmark applied to the international court of the UN to initiate a case to delimit the boundary in the area²⁸⁰. Denmark insisted that the boundary of the EEZ should be on a line 200 nautical miles from Greenland territory. In such a case, the distance from the boundary line to Jan Mayen territory would be 50 nautical miles. However, Norway argued that the line should be drawn according to the principle of equidistance and thus the territories would be divided equally. In the end, the international court of the UN set the boundary at the center of the lines claimed by the parties²⁸¹.

An important precedent in this context is the territorial dispute that existed between Russia and Norway concerning the delimitation of maritime areas in the Barents Sea. Active discussions on drawing the demarcation line started in the 1970s²⁸². The initial position of Norway was that the demarcation should take place according to Article 6 (1) of the UN Convention on the Sea Shelf of 1958, i.e., on the median line, with each point equidistant from the baselines of the coastal states²⁸³. The USSR, in its turn, referred to article 6 (2) of the same Convention according to which in special circumstances the boundary should not be drawn at the midline. From the USSR's point of view, the special circumstances in this case were: first, the strategic importance of the region for the Soviet Union; second, the disproportion between the population in the northern land areas of the Soviet Union and Norway; third, the fact that historically the USSR had a sectoral approach to the

278 Recommendations prepared by the Subcommission established for the consideration of the Submission made by the Russian Federation Approved by the Subcommission on 20 October 2022 Approved by the Commission, with amendments, on 6 February 2023 // UN. [Electronic resource]. URL: https://www.un.org/depts/los/clcs_new/submissions_files/rus01_rev15/2023RusRev1RecSum.pdf (accessed 29.06.2023)

279 Charney J. I. Maritime Delimitation in the Area between Greenland and Jan Mayen (Den. v. Nor.). 1993 ICJ Rep. 38 // American Journal of International Law. 1994. V. 88. №. 1. P. 105.

280 Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway) // International court of Justice. [Electronic resource]. URL: <https://www.icj-cij.org/case/78> (accessed 30.06.2023)

281 Maritime Delimitation in the Area between Greenland and Jan Mayen, Judgment, I.C.J. Reports 1993 // International court of Justice. [Electronic resource]. URL: <https://www.icj-cij.org/public/files/case-related/78/078-19930614-JUD-01-00-EN.pdf> (accessed 30.06.2023)

282 Krivorotov A. K. Unequal division by half: towards the signing of the Russian-Norwegian treaty on delimitation in the Arctic // Moscow University Journal. Series 25. international relations and world politics. 2011. №. 2. P. 62-91.

283 Hønneland G. Russia and the Arctic: Environment, identity and foreign policy. – Bloomsbury Publishing, 2020.

establishment of borders in the Arctic Ocean²⁸⁴. As no final agreement could be reached, a special informal international regime was set up in the area between the lines claimed by the USSR and Norway. As a result, neither Russia (Soviet Union) nor Norway had the right to control and inspect each other's fishing vessels in this territory²⁸⁵.

The lack of defined EEZ boundaries in the Barents Sea has occasionally led to relatively high-intensity conflict situations. In particular, in 2005 the Norwegian Coast Guard attempted to arrest the Russian fishing vessel *Elektron* in unresolved territory²⁸⁶. The attempted seizure resulted in a chase, which included the use of firebombs on the Norwegian side. Eventually, in 2010 Russia and Norway agreed on a demarcation line and signed the Treaty on Maritime Delimitation and Cooperation in the Barents Sea and Arctic Ocean. The final dividing line was drawn in the middle between the lines claimed by Russia and Norway.

The complex of controversial issues in the framework of Russian-Norwegian relations is also related to the international legal status of the Svalbard archipelago. Despite the fact that Spitsbergen-related issues occasionally create conflict situations between Russia and Norway, the status of the archipelago's land territories is not the subject of territorial disputes, as it is regulated by the 1920 Treaty on Spitsbergen²⁸⁷, to which all parties concerned are parties. However, the Treaty did not define the status of coastal maritime areas. Consequently, when the tendency arose to define coastal EEZs, the question arose as to whether it was allowed to be established in relation to Svalbard. As a result, Norway established a Fishery Protection Zone around Svalbard in 1977, rather than a full-fledged EEZ. However, even though this is not an EEZ, Norway's right to establish an EEZ has been challenged by a number of parties to the 1920 Treaty on Svalbard, including Russia²⁸⁸.

The problem related to the Fishery Protection Zone around Spitsbergen is still unresolved. In particular, in a letter to the Norwegian Foreign Ministry in 2020 on the occasion of the 100th anniversary of the Spitsbergen Treaty, Lavrov proposed holding bilateral consultations on a number of issues relating to Spitsbergen, including fisheries protection zone²⁸⁹, but this was rejected by Norway²⁹⁰.

On the other hand, a number of parties to the 1920 Treaty, including the UK, the Netherlands and Denmark, recognize Norway's rights to establish a fisheries protection zone around Spitsbergen.

284 About declaration of the territory of the USSR of the lands and islands located in the Arctic Ocean // Electronic fund of normative legal documents. [Electronic resource]. URL: <https://docs.cntd.ru/document/901761796> (accessed 23.05.2023).

285 Hønneland G. Op. cit. P. 75

286 *Elektron* captain thanked Norwegians for the chase // Lenta.ru. [Electronic resource]. URL: <https://lenta.ru/news/2005/11/28/elektron/> (accessed 23.05.2023).

287 Spitsbergen Treaty of 9 February 2020 // Electronic Fund of Legal and Regulatory and Technical Documents. [Electronic resource]. URL: <https://docs.cntd.ru/document/902038168> (accessed 30.06.2023)

288 Letter from the Soviet Embassy in Norway dated 15 June 1977 // Theory and Practice of Maritime Activities. [Electronic resource]. URL: <https://mgimo.ru/upload/2015/11/shpitzbergen-2006.pdf> (accessed 23.05.2023)

289 Russia With Stern Svalbard Warning to Norway // The High North news. [Electronic resource]. URL: <https://www.highnorthnews.com/en/russia-stern-svalbard-warning-norway> (accessed 23.05.2023)

290 Norway rejected talks on Spitsbergen proposed by Lavrov // RBC. [Electronic resource]. URL: <https://www.rbc.ru/politics/15/02/2020/5e4831f89a7947df7937c5fd> (accessed 29.06.2023)

Moreover, in 2006 an agreement was reached between Norway and Denmark on the delimitation of the EEZ and the Greenland continental shelf and the Fishery Protection Zone around Spitsbergen in the Greenland Sea²⁹¹.

The main current territorial dispute concerning maritime delimitation in the Arctic concerns maritime delimitation in the Beaufort Sea between the US and Canada²⁹². In this debate, Canada primarily refers to the 1825 Anglo-Russian Convention on the Delimitation of British and Russian Possessions on the West Coast of North America. The US position, in turn, is that this convention defined only land borders, while the Beaufort Sea boundary should be delineated on the basis of a median line equidistant from the US and Canadian baselines. The controversy over the issue began in the 1970s. However, there was insufficient scientific data available to the countries at the time, so a final solution could not be reached. In 2010 Canada initiated new contacts on the delimitation question. However, these were again put on hold in 2011²⁹³. At present, the territorial dispute remains unresolved. It should be noted that when the USSR and the US signed a treaty in 1990 on the delimitation of maritime spaces in the Bering and Chukchi Seas, the US insisted on drawing a delimitation line based on the 1867 Russian-American Convention, which in turn referred to the 1825 Anglo-Russian Convention's delimitation line²⁹⁴. Thus, a contradiction can be highlighted: while in the 1990 agreement the US position was that the line could serve as the basis for maritime delimitation, in the case of the territorial dispute in the Beaufort Sea this is unacceptable.

Another territorial dispute over maritime delimitation lines still exists between Canada and Greenland over delimitation in the Lincoln Sea. However, in 2012, a preliminary agreement was reached on which line the delimitation should be drawn. The only unresolved issue that remains on the agenda is the joint management of hydrocarbon resources located on the continental shelf. In 2018, a joint working group was set up with the aim of resolving the issues related to this maritime boundary.

In relation to the territorial dispute between Canada and Denmark, the dispute over the ownership of Hans Island. In terms of territorial disputes between Canada and Denmark, the dispute over the ownership of Hans Island, located in the Kennedy Strait between Greenland and Ellesmere Island in Canada, is particularly important. When Greenland and Canada delimited the continental shelf in 1973, the countries did not reach a final agreement on the ownership of the island. As a result, for a long time, both countries maintained claims to the island. However, on June 11, 2022, a final agreement was reached between the governments of Denmark, Greenland, Canada and Nunavut, dividing the island in half between the states.

291 Oude Elferink A. G. Maritime Delimitation between Denmark/Greenland and Norway // *Ocean Development & International Law*. 2007. V. 38. №. 4. P. 375.

292 Østhagen A., Schofield C. H. An ocean apart? Maritime boundary agreements and disputes in the Arctic Ocean // *The Polar Journal*. 2021. V. 11. №. 2. P. 323.

293 Dodds K. A polar Mediterranean? Accessibility, resources and sovereignty in the Arctic Ocean // *Global Policy*. 2010. V. 1. №. 3. P. 306.

294 Vylegzhaniy A. N. N. 20 Years of the 'Temporary Application' of the Agreement between the USSR and the USA on the Maritime Delimitation Line // *Journal of MGIMO University*. 2010. №. 1. P. 106.

7. Multilateral Cooperation in the Arctic: Traditional and New Formats

Bilateral cooperation formats constitute the foundation for the implementation of sustainable development policies in the Arctic and have long been the basis for inter-country cooperation in the region. However, the uniqueness of the Arctic lies in its high vulnerability to global processes and challenges to sustainable development, primarily local pollution and climate change. The need to ensure environmental responsibility in carrying out economic activities in the region related to the extraction of minerals and navigation contributed to the institutionalization of international cooperation in the Arctic and the establishment of the Arctic Council in 1996. It was the environmental component that underpinned the establishment of this key international forum for managing the Arctic region. The transboundary nature of the challenges to the sustainable development of the Arctic makes it necessary to maintain multilateral formats of cooperation in the region.

7.1. Key Messages from the Events

The possibilities of multilateral cooperation on sustainable Arctic issues in the context of geopolitical turbulence were discussed during the following events: “International cooperation as a guarantee of sustainable development of the Arctic” (June 16, 2022), “Eastern dimension of international cooperation in the Arctic” (September 7, 2022), “Multilateral cooperation in the Arctic through the prism of international Arctic organizations: situational analysis” (November 30, 2022), “Prospects for cooperation in the field of sustainable development of the Arctic within the framework of BRICS” (May 25, 2023) and “The Arctic as a unique area of international cooperation: prospects and opportunities” (June 14, 2023).

During the expert discussions, the formats, projects and necessary conditions were considered, thanks to which international cooperation in the Arctic region can receive an impetus for the implementation of the planned activities in the coming years. The participants of the events identified **multilateral cooperation as an effective tool for addressing climate and environmental problems in the Arctic region.**

The geopolitical context that developed in 2022 caused a slowdown in project cooperation, scientific interaction, and data exchange in the Arctic. In particular, at the beginning of March 2022, the activities of the Arctic Council, the main institute for Arctic management, were suspended. Even though Russia is a key actor in the governance system in the Arctic and international cooperation in the region cannot be successful and effective without its participation, all the countries of the Arctic Eight refused to cooperate with Russia in the AC and suspended their participation in the activities of its subsidiary bodies, as well. Most other formats of international cooperation in the Arctic, including the Barents/Euro-Arctic region Council, the Northern Dimension initiative, the programs of cross-border cooperation between Russia and the European Union in the Arctic (“Kolarctic”, “Karelia”, “Russia-Southeastern Finland”) They also failed to adapt to the change in the geopolitical paradigm and suspended cooperation with Russia.

By the end of 2022, there were practically no supporters of the old views that the Arctic is developing separately from international security problems. **On the contrary, today the Arctic is an arena of rivalry between the powers involved in it and a strategically important region for non-Arctic countries.** At the same time, the inclusion of new actors in the Arctic takes on a more systematic character and is not only framed by agreements on a bilateral basis but is also put on the agenda of international associations that have not previously participated in the development of the Arctic.

The central place in the implementation of the SDGs in the region in the medium term can be assigned to the BRICS, since several member countries of the association already either have an Arctic strategy and an established partnership with Arctic countries, such as India and China, or are at the stage of forming similar plans and initiatives, while having a significant reserve in the study of southern polar latitudes, like Brazil and South Africa.

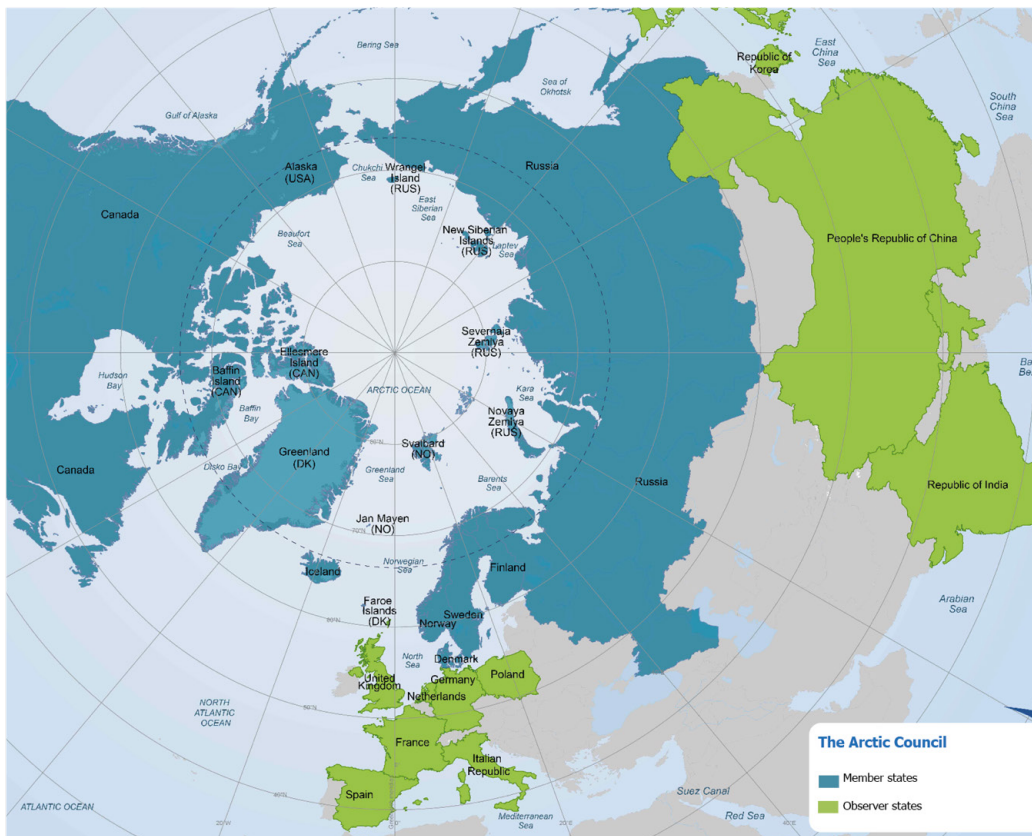
Taking into account the current geopolitical context and the “freezing” of multilateral Arctic projects in traditional formats, **for Russia, the involvement of non-Arctic partners in the implementation of the policy of sustainable development of the Arctic seems to be a key opportunity, which on the one hand will contribute to improving the level and quality of life in the region, and on the other - will provide a geostrategic balance with significant dominance of Western countries in governance institutions The Arctic.**

7.2. Key Multilateral Projects Implemented with the Participation of Russia and International Partners

7.2.1. Traditional Formats of Cooperation

The Arctic Council has long remained a platform for peaceful and constructive cooperation in the region, uniting not only the countries of the “Arctic Eight” – Russia, Canada, the USA, Denmark, Norway, Finland, Sweden and Iceland, but also representatives of the indigenous peoples of the North – the Arctic Athabaskan Council, the International Association of Aleuts, the International Council of Gwitchin’s, the Circumpolar Council of Inuit, The Association of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation and the Sami Council. The growing interest in the Arctic in the international space is also supported by an increase in the number of non-Arctic actors in the Arctic Council as observers, whose status for 2023 has 13 states, including China and India, 25 intergovernmental structures and non-governmental organizations, for example, the International Arctic Scientific Committee, the International Maritime Organization, the Northern Forum, etc. (fig. 8).

The Arctic Council member states and the Arctic Council observer states



Member states

- Canada
- Denmark
- Finland
- Iceland
- Norway
- Russia
- Sweden
- United States

Observer states

- Germany
- Netherlands
- Poland
- United Kingdom
- France
- Spain
- China
- India
- Italy
- Japan
- South Korea
- Singapore
- Switzerland

Figure 8. The Arctic Council member and observer states

Source: based on Arctic Portal

Established in 1996 solely to ensure regional environmental security, over the decades the Arctic Council has managed to expand the scope of its competence to ensure a comprehensive policy of sustainable development in the region. Most of the projects of the Arctic Council are implemented



within the framework of six working groups: the Working group on the elimination of Arctic pollution (ACAP), the working group on the implementation of the Arctic Monitoring and Assessment Program (AMAP), the working group on the conservation of Arctic flora and Fauna (CAFF), the working group on prevention, preparedness and emergency Response (EPRP), the Arctic Marine Environment Protection Working Group (PAME) and the Sustainable Development Working Group (SDWG). The structure of the Arctic Council and some projects of its working groups are given in Table 9.

In 2021, the Arctic Council adopted the “Strategic Plan of the Arctic Council for 2021-2030”, which fixed increasing the sustainability of the Arctic as a priority for the next decade. The key target areas of the plan are: 1) **the Arctic climate**, in particular monitoring and assessment of the effects of climate change; 2) **healthy and viable Arctic ecosystems** through the promotion of pollution prevention, monitoring and assessment, as well as the conservation of biological diversity; 3) **healthy Arctic marine environment**, including protection of marine biodiversity, sustainable use of marine resources of the region and prevention of marine pollution; 4) **sustainable social development** through ensuring cultural and social integration, improving the quality of health systems and the general level of well-being of the population; 5) **sustainable economic development**, including through the development and implementation of environmentally friendly solutions, increasing the inflow of “green” investments, etc.; 6) **knowledge and information exchange** through the collection and dissemination of scientific knowledge, knowledge about traditional culture to deepen understanding of the Arctic; 7) **strengthening of the Arctic Council** as the central international platform in the region and the formation of a constructive dialogue between its members.

Table 9 – The Structure of the Arctic Council

Name	Participation	Description
The Arctic Council (since 1996)	<p>Members: Denmark, Iceland, Canada, Norway, Russia, USA, Finland, Sweden</p> <p>Permanent participants: Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Council, Russian Association of Indigenous Peoples of the North, Saami Council</p> <p>Observers: France, Germany, Italy, Japan, Netherlands, China, Poland, India, South Korea, Singapore, Spain, Switzerland, United Kingdom</p>	This is the main intergovernmental forum that ensures cooperation, coordination and interaction between the Arctic States, indigenous communities and the rest of the Arctic population. Its agenda includes general regional issues and, in particular, sustainable development and environmental protection issues.
Arctic Council Agreements		
«Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic» (2011)	Denmark, Iceland, Canada, Norway, Russia, USA, Finland, Sweden	The agreement is to strengthen cooperation and coordination in the Arctic during aviation and maritime search and rescue operations conducted in the territories controlled by the member states of the Arctic Council.
«Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic» (2013)		The document confirms the readiness of the signatories to strengthen cooperation, coordination and mutual understanding in the field of taking preliminary measures and combating oil spills at sea in the Arctic region. The agreement implies the adoption of additional regional measures that ensure cooperation when spill clean-ups are being prepared.
«Agreement on Enhancing International Arctic Scientific Cooperation» (2017)		The agreement is designed to promote scientific cooperation in the Arctic, as well as to provide simplified border-crossing procedures for scientists and research expeditions.



Name	Participation	Description
Working Groups		
The Arctic Contaminants Action Program, ACAP		<p>The current ACAP's work plan is based on pilot projects designed to reduce emissions of mercury, persistent organic pollutants (POPs) and hazardous substances, as well as to reduce emissions of black carbon and other short-lived pollutants. Special attention is paid to onshore waste management to prevent plastic waste and microplastics from being released into the Arctic environment.</p> <p>Key projects:</p> <ul style="list-style-type: none"> - Kola Waste Project (2018 – present time) - Dudinka Municipal Waste Landfill (2017–2023) - Solid Waste Management in Small Arctic Communities (2020–2023) - ARCRISK – Mercury Risk Evaluation, Risk Management, and Risk Reduction Measures in the Arctic (2019 – 2023) - Phase-out of Ozone Depleting Substances and Fluorinated Greenhouse Gases at Fish and Seafood Processing Enterprises (2017 – present time)
Arctic Monitoring and Assessment Programme, AMAP		<p>AMAP engages in documenting the effects of pollutants, their sources and routes of transmission, as well as the dynamics of the key climatic indicators. It investigates the impact of pollution and climate change on the Arctic ecosystems and people and reports on the Arctic environment condition. The group advises ministers on improving the ecology of the region.</p> <p>Key projects:</p> <ul style="list-style-type: none"> - Arctic Marine Microplastics and Litter (2018 – present time) - Understanding Climate Change Impacts on Arctic Ecosystems and Associated Climate Feedbacks (2020 – present time) - Climate Issues: Cryosphere, Meteorology, Ecosystems Impacts (2018 – present time) - Addressing Contaminants and Human Health Issues (2017 – present time) - Biosecurity in the Arctic (2021–2023) - Contaminant Issues: POPs and Mercury (2018 – present time)

Name	Participation	Description
Conservation of arctic flora and fauna, CAFF		<p>CAFF is involved in conservation of the Arctic biodiversity and informs governments and Arctic residents about research results, helping to promote management methods that ensure Arctic ecosystem sustainability.</p> <p>Key projects:</p> <ul style="list-style-type: none"> – Freshwater Biodiversity Monitoring (2021 – present time) – The Arctic Wildland Fire Ecology Mapping and Monitoring Project (Arcticfire) (2019–2023) – Mainstreaming Arctic Biodiversity (2017 – present time) – Other Effective Area-based Conservation Measures (OECM) Areas in the Arctic Marine Environment (2021 – present time) – Resilience and Management of Arctic Wetlands (2017 – present time) – Protection from Invasive Species (2015 – present time)
Emergency Prevention, Preparedness and Response, EPPR		<p>EPPR's work is focused on prevention of environmental emergencies, responding to them, as well as conducting search and rescue operations. In addition, the group strengthens cooperation, information exchange, and data collection in the field of emergencies. Together with other working groups and subsidiary bodies of the Council, EPPR collects information on best practices, assesses regional conditions, and ensures decision-making on regional emergency response.</p> <p>Key projects:</p> <ul style="list-style-type: none"> – New Low Sulphur Fuels, Fate, and Behavior in Cold Water Conditions (2019–2023) – Circumpolar Oil Spill Response Viability Analysis (COSRVA) (2018–2021) – International Cooperation on Aerial Surveillance (2021–2023) – Capability Analysis to Respond to a Radiological/ Nuclear Emergency in the Arctic (2021–2022)

Name	Participation	Description
Protection of the Arctic marine environment, PAME		<p>PAME's activities relate to protection and sustainable management of the Arctic marine environment. The group develops circumpolar and regional action programmes and works out recommendations to complement existing legal mechanisms that protect the Arctic marine environment from negative impacts. PAME's projects cover such areas as shipping, exploration and exploitation of resources, combating ocean pollution, and introduction of the ecosystem approach to Arctic marine environment management.</p> <p>Key projects:</p> <ul style="list-style-type: none"> – Black Carbon Emissions from Shipping Activity in the Arctic and Technology Developments for Their Reduction (2019–2021) – Collaboration with the Arctic Regional Hydrographic Commission (ARHC) (2019–2023) – Arctic Protected and Important Areas (2017–2021) – Low Impact Shipping Corridors in the Arctic (2019–2021) – Wastewater Discharges from Vessels in the Arctic (2021–2023)
Sustainable Development Working Group, SDWG		<p>SDWG aims to promote long-term initiatives that guarantee sustainable development in the Arctic region, expand circumpolar cooperation, and involve indigenous peoples in regional management.</p> <p>Key projects:</p> <ul style="list-style-type: none"> – Blue Bioeconomy in the Arctic Region (2019–2021) – Arctic Children: Preschool and School Education (2017–2021) – Gender Equality in the Arctic III (2019–2021) – Digitalization of the Linguistic and Cultural Heritage of Indigenous Peoples of the Arctic (2020–2024) – The Economy of the North (ECONOR) (2020–2021) – Advancing Arctic Resilience (2021–2023)

In 2021-2023, the Russian Federation was the Chairman of the Arctic Council. “Responsible governance for a sustainable Arctic” was established as a guiding principle. The priority areas of the Russian chairmanship in the Arctic Council are: 1) the population of the Arctic, including indigenous peoples, 2) environmental protection, including climate change issues, 3) socio-economic development, 4) strengthening of the Arctic Council. The initiatives of the Russian chairmanship of the Arctic Council are presented in more detail in Box 2.

Box 2. Key initiatives of Russia’s Chairmanship in the Arctic Council 2021-2023

The population of the Arctic, including the indigenous peoples of the North

The development of human capital, the support of the ISPN and the realization of the potential of the Arctic youth provide conditions for improving the well-being and quality of life of the Arctic population. Thus, the priority for the Russian presidency was the formation of a modern urban environment in the Arctic settlements, increasing the availability of Quality Education, and improving the healthcare system. Attention was also paid to the promotion of scientific exchanges, the preservation of linguistic and cultural heritage, the development of tourism, the establishment of contacts between people and regions.

Within the framework of the Russia’s presidency, numerous events were organized, including: the Conference on Saving Human Health in the Arctic (June 1-3, 2022, Arkhangelsk), the Summit of Indigenous Peoples of the Arctic (November 2, 2022, Moscow), the Forum of Youth of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation “Russian North” (November 22-25, 2022, Salekhard).

Environmental protection, including the fight against climate change

Mitigation and adaptation measures to the effects of climate change are of paramount importance in the context of climate change in the Arctic. Exposure to climate risks of the unique ecosystems of the Arctic also necessitates measures to preserve and restore the environment, rational use of natural resources, maintaining the health of marine ecosystems and preserving the biodiversity. Special attention within the framework of the Russia’s presidency in the AC was paid to the innovative potential in the field of industry, energy, transport and infrastructure, which can contribute to the low-carbon development of the region’s economy.

The following events were devoted to the theme of environmental protection: the Conference on Adaptation to climate change in the Arctic (July 7-8, 2022, St. Petersburg), the Conference on Waste and Microplastics in the Arctic (July 20, 2022, Arkhangelsk), the Scientific and practical conference on climate change and permafrost melting (22-24 March 2023, Yakutsk).

Socio-economic development in the region

In this area, the priorities of the chairmanship included strengthening economic cooperation in the Arctic, ensuring the energy security of the region through the development of infrastructure, maritime navigation, telecommunications systems and the food sector. Ensuring the investment attractiveness of the Arctic regions also plays an important role.

A number of events on the socio-economic development of the region took place on the sidelines of the VII Eastern Economic Forum, which was held on September 5-8, 2022, in Vladivostok on the campus of the Far Eastern Federal University (FEFU). These included, for example, the Conference on Investment and Trade in the Arctic, the session “The Northern Sea Route: faster, more reliable and more efficient”.

Strengthening the Arctic Council

This sphere assumed ensuring the coordinated work of the AU and the approval of collective principles in the issues of sustainable development of the region. However, the “freezing” of the activities of the AC by the Western bloc of the Arctic countries in March 2022 created obstacles to the implementation of the intended goals. Nevertheless, even in the conditions of the “freeze”, Russia, as the chair of the AC, performed its functions and continued to hold events.

The issues of strengthening the AU were devoted to the events of the “official block”, for example, the Meeting of the Arctic Economic Council (June 3, 2021, St. Petersburg) and the First Plenary Meeting of the Arctic Council under the chairmanship of Russia (December 1-2, 2021, Salekhard).

Nevertheless, despite the important role of the Arctic Council in the architecture of Arctic governance institutions and the rather successful history of this platform, due to the geopolitical crisis of 2022-2023, Russia was de facto excluded from the Arctic Council. The member States of the forum (except for Russia) refused to participate in the activities of the organization and in the activities of its bodies²⁹⁵. In June 2022 Canada, Denmark, Finland, Sweden, Norway, Iceland and the USA have decided to resume cooperation without Russia, and not in all the activities of the forum, but only in those projects within working groups where the Russian Federation does not participate²⁹⁶. Digest of political news that have occurred in the Arctic region since the events of 2022 is presented in Annex 4.

The following is a list of key areas, initiatives and projects implemented in the Arctic Council with the participation of Russia and other countries until the beginning of 2022.

- – ongoing project
- – completed project
- – suspended project

Key Arctic Council Agreements

- Agreement on Cooperation in the Field of Aviation and Maritime Search and Rescue in the Arctic (2011): coordination in the field of search and rescue in the Arctic, joint exercises and exchange of experience.
- Agreement on Cooperation in the field of Readiness and Response to Marine Oil Pollution in the Arctic (2013): Strengthening cooperation, coordination and mutual assistance in the field of preparedness and response to oil pollution in the Arctic in order to protect the marine environment from oil pollution.
- Agreement on the Expansion of International Scientific Cooperation in the Arctic (2017): promoting the expansion of opportunities for the inclusion of students and young scientists in scientific activities in the field of Arctic development.

Key Projects of the Arctic Council Working Groups with the participation of Russia

- “Arctic Migratory Birds Initiative” (2019-2025): identification of patterns of migration of Arctic birds and improvement of their habitat conditions (SDG 15 – Life on Land);
- “Arctic Food Innovation Cluster” (2019): research in the field of agroforestry, aquaculture and biotechnology;
- “Arctic Demographic Index” (2020-2023): development of a methodology for calculating the demographic index (SDG 3 – Good Health and Well-being);

295 The Foreign Ministry called the decision of the Arctic Council to suspend work irrational // RIA Novosti. [Electronic resource]. URL: <https://ria.ru/20220304/sovet-1776541667.html> (accessed: 02.06.2022)

296 Joint Statement on Limited Resumption of Arctic Council Cooperation // U. S. Department of State. [Electronic resource]. URL: <https://www.state.gov/joint-statement-on-limited-resumption-of-arctic-council-cooperation/> (accessed:11.11.2022)

- “Youth of indigenous peoples of the Arctic, climate change and food culture” (2015-2019, 2019-2021): formation of a knowledge base on the food culture of indigenous peoples of the Arctic (SDG 3 – Good Health and Well-being);
- “Digitalization of the linguistic and cultural population of the indigenous peoples of the Arctic” (2021-2024): creation of a single online portal with materials about the indigenous peoples of the Arctic for the exchange of experience in adapting to new living conditions and popularizing the culture of the peoples of the Arctic.

Cross-border Cooperation (CBC) programs between Russia and the European Union

- CBC Kolarctic (2007-2013, 2014-2020, 2021-2027)

Participants: Russia, Finland, Sweden, Norway

Directions of the 2021-2027 program: 1) high-tech Europe and its environment; 2) green low-carbon Europe and its environment; 3) interconnected Europe and its environment; 4) socially oriented Europe and its environment; 5) Europe and its environment, focused on citizens (fig. 9).

- CBC Karelia (2007-2013, 2014-2020, 2021-2027)

Participants: Russia and Finland

Directions of the 2021-2027 program: 1) improving the competitiveness of the economy, 2) improving energy efficiency, 3) environmental protection and biodiversity conservation, 4) water resources management (fig. 9).

- CBC Russia-Southeastern Finland (2007-2013, 2014-2020, 2021 -2027)

Participants: Russia and Finland

Directions of the 2021-2027 program: 1) improving the standard of living of the population in the region; 2) climate risk management; 3) improving the quality and accessibility of social infrastructure in the region (fig. 9).

Kolarctic Cross-Border Cooperation Programme 2014-2020



Karelia Cross-Border Cooperation Programme 2014-2020



Russia - South-East Finland Cross-Border Cooperation Programme 2014-2020



Figure 9. Financing of the CBC "Kolarctic", "Karelia", "Russia – Southeastern Finland" 2014-2020

Source: compiled by the authors based on CBC EU

Cooperation in the Barents/Euro-Arctic region Council (BEAC)

Barents/The Euro-Arctic region Council was established in 1993. The permanent members of the organization are Denmark, Iceland, Norway, Finland, Russia, Sweden and the European Commission. The role of the chairman of the organization alternately passes between Norway, Russia, Finland and Sweden. Finland is the chairman in 2021-2023. By analogy with the Arctic Council within the Barents/Euro-Arctic region Council has created working groups responsible for activities in such areas as health and social services, science and education, culture, forestry, tourism, transport and logistics, entrepreneurship, environmental protection, support for the indigenous population of the Arctic, youth support and cooperation in rescue operations.

The Regional Council existing within the BEAC includes 13 subjects of Russia, Norway, Finland and Sweden. The chairmanship of the Regional Council is replaced every two years, but administrative entities, not States, take turns chairing. In 2021–2023, the chairmanship was carried out by the Nenets Autonomous Okrug of the Russian Federation (NAO). Increasing cross-border mobility in the Barents region, the development of a diversified and sustainable economy, and the development of human capital were identified as priorities for the term of the representative office.

In March 2022, amid a change in the geopolitical context, Norway, Finland, Denmark, Sweden and Iceland, as well as the European Union, announced the suspension of cooperation with Russia within the framework of the BEAC²⁹⁷. In this regard, a number of important multilateral projects and initiatives have been frozen.

Key projects of the Barents Council/Euro-Arctic region

- The plan for the construction of the Vorkuta–Kotlas–Syktyvkar–Arkhangelsk–Vartius–Oulu railways and the Murmansk–Raya–Jooseppi–Ivalo automobile route (2021) of the Barents Financial Mechanism (BFM) is aimed at promoting sustainable development and contacts between people in the Barents region, as well as at achieving the priorities of the presidencies and the Barents Program for 2019–2023²⁹⁸.
- Arctic skills - is a joint project of Norway, Russia, Finland and Sweden: professional training of students from four countries for the exchange of knowledge and experience²⁹⁹.

The Northern Dimension Initiative

The Northern Dimension (ND) initiative was launched in 1999 and resumed in 2006. It is a joint policy of the EU, Russia, Norway and Iceland. The initiative is aimed at maintaining stability, well-being and sustainable development in the region through practical cooperation. Within the framework of the ND initiative, there are three organizational structures: the Northern Dimension Institute is responsible for meeting the information needs of the Northern Dimension policy, the Northern Dimension Business Council (NDBC) promotes the establishment of business contacts and dialogue between firms and government bodies in the region, and the Northern Dimension Parliamentary Forum provides a platform for the involvement of parliaments of the member states participants in the main activities of ND.

The Northern Dimension works in four partnerships, including environmental protection (SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land), public health and well-being (SDG 3 – Good Health and Well-being), transport and logistics (SDG 9 – Industry, Innovation and Infrastructure) and culture. As in the framework of the BEAC and the AC, at the beginning of March, a number of projects on cooperation with Russia in the ND were frozen³⁰⁰.

297 The Barents/Euro-Arctic Council region suspended cooperation with Russia // Interfax. 2022. [Electronic resource]. URL: <https://www.interfax.ru/russia/827077> (accessed: 02.06.2023)

298 A new financial instrument has been launched to strengthen Barents Cooperation // The Barents/Euro-Arctic Council. [Electronic resource]. URL: <https://barents-council.org/img/2022-01-25-BFM-Press-release-RU.pdf> (accessed: 02.06.2023)

299 Talking Barents: prospects and formats of cooperation // Roscongress. [Electronic resource]. URL: <https://roscongress.org/news/talking-barents-perspektivy-i-formaty-sotrudnichestva> (accessed: 06/02/2023)

300 "Northern Dimension": EU, Iceland and Norway suspend cooperation with Russia and Belarus // EU NEIGHBORS east. "The Northern Dimension". 2022. [Electronic resource]. URL: <https://euneighbourseast.eu/ru/news-and-stories/latest-news/severnoe-izmerenie-es-islandiya-i-norvegija-priostanavlivayut-sotrudnichestvo-s-rossiej-i-belarusyu> (accessed: 02.06.2023)

International Union of Circumpolar Healthcare

The International Union of Circumpolar Healthcare is one of the formats of support for the indigenous peoples of the North. The Union was officially established in 1981 at the 5th International Congress on Circumpolar Health, held in Copenhagen. It is an alliance of five affiliated organizations, namely the American Society of Circumpolar Health, the Canadian Society of Circumpolar Health, the Northern Society of Arctic Medicine, the Siberian Branch of the Russian Academy of Sciences and the Danish-Greenlandic Society of Circumpolar Health, as well as some affiliated members. The Union deals with the health problems and needs of the peoples living in the region.

The organization promotes international cooperation in the field of circumpolar health, encourages and supports research and exchange of scientific information in the field of circumpolar health sciences, raises public awareness of circumpolar health, provides means of communication with other scientific organizations and promotes the participation of indigenous peoples in the field of health³⁰¹. The Union's activities are based on improving the quality and accessibility of healthcare, organizing occupational safety, improving living conditions and accessibility of healthcare for the local population (SDG 3 – Good Health and Well-being). Cooperation with Russia within the framework of the Union's activities was suspended in 2022.

University of the Arctic (UArctic)

The University of the Arctic is the largest international network uniting universities and educational centers engaged in Arctic research. Activities to create a university system began in 1997, and in 2002 the first students participated in pilot exchanges under the North2North program. In 2008, the creation of an electronic catalog of universities participating in the initiative began. The participants of the UArctic network are such as the University of Helsinki, the University of Turku, the University of Oulu, the University of Lapland (Finland); the University of Quebec in Montreal, the Arctic College of Nunavut (Canada); University of Alaska Pacific, University of Washington (USA); University of Bergen, University of Oslo (Norway); University of Southern Denmark, University of Copenhagen (Denmark); Chinese Academy of Meteorological Sciences, Institute of Polar Research of China, (China); National Center for Polar and Oceanic Research of the Ministry of Land Tenure of India (SDG 4), etc.

The activities of the UArctic university network are primarily aimed at the exchange of knowledge and experience between scientists from different countries and the expansion of cooperation in scientific research in the Arctic region. Russia also maintains a scientific dialogue with the Arctic states, which contributes to more in-depth research of the Arctic region. However, due to the Russian-Ukrainian crisis, the University of the Arctic temporarily suspends cooperation with Russian universities and research centers, and also cancels the UArctic Congress in Moscow³⁰².

International Maritime Organization (IMO)

301 Objectives // International Union for Circumpolar Health. [Electronic resource]. URL: <https://www.iuch.net/about/#tab-id-2> (accessed: 02.06.2023)

302 UArctic Statement on Ukraine // UArctic. [Electronic resource]. URL: <https://www.uarctic.org/news/2022/4/uarctic-actions-on-ukraine> (accessed: 02.06.2023)

The International Maritime Organization was established in 1959. Its activities are related to improving the reliability and safety of navigation in the field of international trade and the prevention of marine pollution from ships. IMO has 175 member States and three associate members. Russia joined the organization in 1958.

In 2014, the Polar Code was signed within the framework of the International Maritime Organization, which entered into force in 2017. The main purpose of the document is to ensure the safety of the operation of ships, as well as the protection of the environment in the polar regions, considering the risks arising from the reduction of the area and thickness of ice in the Arctic Ocean (SDGs 9, 15). The Code continues to be valid both for Russia and for other countries participating in the agreement.

7.2.2. New Formats of Cooperation – Cooperation of the BRICS Countries in the Field of Sustainable Development

In the context of the suspension of cooperation in the Arctic Council, its actual incapacity and low adaptation to changes in the balance of power in the international arena, the search for new international platforms comes to the fore for Russia, the institutional framework which already takes into account issues of sustainable development to some extent, which makes possible the potential inclusion of the Arctic agenda in the sphere of activities of inter-country formats.

At the moment, BRICS is one of the key interstate platforms in the international arena, uniting the largest economies of the world. **One of the main principles of multilateral cooperation of the BRICS countries is the commitment to support sustainable development, balanced and inclusive growth.** The BRICS countries pay special attention to cooperation in such areas as science, technology, Arctic research, protection of water resources and the environment, and combating climate change. **The countries recognize that the promotion of sustainable development is one of the priorities of the international community, therefore, the BRICS member States are implementing joint initiatives and comprehensive programs to achieve the SDGs,** especially SDG 6 – Clean Water and Sanitation, SDG 7 – Affordable and Clean Energy and SDG 13 – Climate Action.

The interests of the BRICS countries are logically increasingly directed to the North and South Poles. In particular, the growing attention of the BRICS countries to the Arctic is due to Russia's leading role in the region: the country is the only Arctic state in the BRICS and a member of the Arctic Council. India and China, which received observer status in the AC in 2013, are gradually being involved in the region, followed by the adoption of national strategies in the Arctic (2018 and 2022, respectively). The polar policy of Brazil and South Africa is more focused on the South Pole, while a significant reserve in the study of Antarctica determines the possibilities of involving these countries in the Arctic.

The following is a list of directions and projects implemented by the BRICS countries in the field of sustainable development.

- – ongoing project
- – completed project
- – suspended project

Protecting the environment and combating climate change

- Memorandum of Understanding on Cooperation in the Field of Environmental Protection of the BRICS Countries (2018): strengthening cooperation of the BRICS countries and promoting joint efforts in issues related to the protection of the environment and biodiversity (SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land);
- The BRICS Environmentally Sound Technologies Platform (BEST) (2019): the exchange of environmentally sound technologies as a new international mechanism of public-private partnership (SDG 13 – Climate Action);
- Activities of the New BRICS Development Bank: financing of “green” projects (SDG 9 – Industry, Innovation and Infrastructure).

Science, Education and Technology

- Memorandum of Cooperation and Mutual Understanding in the field of science, technology and innovation of BRICS (2015): joint research activities in the field of climate change and minimizing the consequences of natural disasters, water resources management and pollution neutralization, polar and oceanic research (SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land);
- Exchange programs within the framework of the BRICS Network University (2015): implementation of student exchange programs.
- BRICS STI FP Framework Program (2015): stimulating joint research between BRICS countries, financial support for multilateral fundamental, applied and innovative projects;
- Research and Innovation Network Platform of the BRICS countries (2015): research in the field of disaster prevention and mitigation, geospatial technologies, renewable energy and energy efficiency, astronomy, water resources (SDG 7 – Affordable and Clean Energy, SDG 9 – Industry, Innovation and Infrastructure, SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land).

Polar research

- BRICS Working Group on Cooperation in Oceanic and Polar Research Zones (2018) (SDGs 14, 15): development of modern technologies for observing and predicting changes in the ocean and climate, the viability of the marine ecosystem; polar scientific research, including remote sensing of the Antarctic surface relief; observation of space from polar regions.

7.3. Recommendations for Strengthening Multilateral Cooperation in the Field of Sustainable Development of the Arctic

The isolation of Russia from the Arctic Council and the virtual disregard of its chairmanship by other countries of the Arctic Eight have intensified the tendency to fragmentation of the system of multilateral cooperation and caused uncertainty in the future architecture of the region's governance. **The role and functionality of traditional Arctic institutions, one of which is the Arctic Council, which previously claimed to be transformed into a full-fledged international organization, has significantly decreased due to the exclusion of Russia from the region's governance processes. For Russia, the tasks of finding new partners and the need to build alternative and more flexible platforms for interaction in the Arctic have come to the fore.**

The creation of new cooperation formats does not detract from the importance of existing regional governance platforms, in particular the Arctic Council, **however, in the short term, the resumption of a full-fledged dialogue between Russia and a bloc of Western countries for the implementation of a comprehensive sustainable development agenda is not possible due to existing foreign policy restrictions and existing sanctions.** Nevertheless, as geopolitical tensions decrease, it is likely to restore existing channels of interaction and build cooperation around the most pressing problems in the Arctic, in particular the environmental agenda, climate change issues and support for small indigenous peoples.

It is the scientific dialogue that can become a fulcrum for the further realization of accumulated capital in the Arctic. The sustainable development of the Arctic region will be facilitated by strengthening partnerships with non-Arctic countries that have a foundation in the development of the Arctic, for example, India and China, as well as Russia's partners in other international platforms, including BRICS.

Even though the future of the Arctic governance architecture is rather vague, as well as the further role and possibility of preserving the Arctic Council in its current form is not fully clear, **it can be argued that the development of multilateral cooperation in the Arctic in the medium term will be determined by (1) the degree of conflict in international relations and (2) the pace of global economic recovery.** Based on these factors, 4 scenarios for the development of cooperation in the region were formulated (fig. 10) in the context of four key features that consider the trends of recent years in the architecture of regional governance institutions. A detailed description of the scenarios for the development of international cooperation in the Arctic is provided in Annex 5.

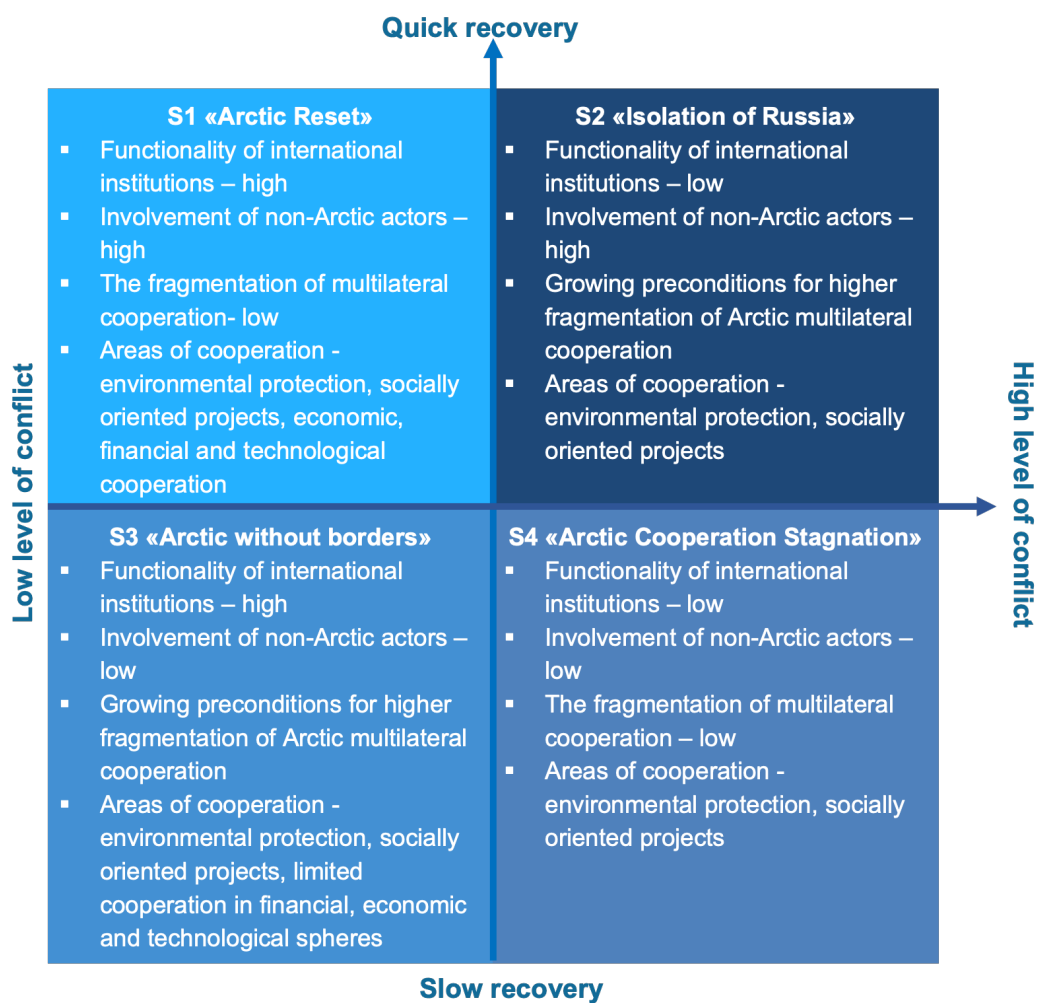


Figure 10. Matrix of scenarios for international cooperation in the Arctic

Source: Compiled by the authors

Key features

- 1. The overall functionality** of the cooperation institutions in the region is characterized by the intensity of the different cooperation formats through the creation of new working groups, the implementation of projects and the conclusion of multilateral agreements, as well as participation in the traditional institutions of Arctic governance of all the countries of the "Arctic Eight", including Russia as a key agent in the region.
- 2. The degree of involvement** of non-Arctic countries in the work of the Arctic institutions includes the increased presence of non-Arctic countries in the Arctic and the possibility of new actors in key platforms for international cooperation. This feature considers the likely change in the status of non-Arctic countries in organizations, in particular, the acquisition of observer status by countries and non-governmental organizations.
- 3. Degree of fragmentation** of the system of multilateral cooperation refers to the level of divergence of interests of the key actors in the region, prospects for the formation of alternative blocks in the Arctic and the creation of new formats with a certain number of actors with similar interests in the region.
- 4. Priorities for international cooperation** in the Arctic reflect a shift in the focus of joint activities between the countries, taking into account the existence of several cross-cutting areas of cooperation in the field of sustainable development, which in any scenario will remain basic. These could include either support for indigenous peoples and environmental protection or climate change issues or expansion of the portfolio of projects in various fields.

At the moment, despite all the efforts of Russia, including diplomatic ones, undertaken during its chairmanship in the Arctic Council, as well as the concern of non-Arctic countries about the collapse of the system of governance institutions in the Arctic, **the second scenario is being implemented, which involves the isolation of Russia from the traditional formats of cooperation in the Arctic and the formation of prerequisites for the fragmentation of the regional governance system.** This will most likely manifest itself in putting Arctic development issues on the agenda of non-Arctic platforms and forums, in particular the BRICS.

Prospects for Cooperation in the Arctic Council

In the short term, intensive cooperation between the Arctic Eight countries within the framework of the Arctic Council will probably not be carried out, however, as international tensions decrease and the geopolitical crisis is overcome, a window of opportunity remains for the realization of accumulated capital in such areas as environmental protection, support for small indigenous peoples, science and education, transport and logistics.

Environmental Protection and Combating Climate Change

- Creation of a system for monitoring and assessing climate change in the Arctic, monitoring permafrost melting (fig. 9), monitoring marine pollution and ocean acidification (SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land);
- Cooperation in sustainable agroforestry (SDG 15 – Life on Land);
- Programs to support the biodiversity of Arctic ecosystems (SDG 14 – Life Below Water, SDG 15 – Life on Land);
- Implementation of measures for the sustainable use of fish resources (SDG 14 – Life Below Water).

Support for the Arctic Population and Indigenous Peoples

- Creation of a knowledge base on the food culture of the indigenous peoples of the Arctic.
- Popularization of the culture of the peoples of the Arctic through international cultural events, forums and seminars.

Science, Education and Technology

- Conducting joint expeditions to study the level of acidification of the Arctic Ocean, the level of pollution of the Arctic Ocean with microplastics (SDG 13 – Climate Action, SDG 14 – Life Below Water);
- Holding international seminars and conferences dedicated to the problems of development of the Arctic region and discussion of possible cooperation projects (SDG 17 – Partnerships for the Goals).
- Festivals, creation of cultural venues and centers.

Prospects for BRICS cooperation in the Arctic

Taking into account the growing economic presence of China and India in the Arctic, scientific interest from Brazil and South Africa, as well as the existing groundwork within the framework of BRICS in the field of sustainable development, **this format can become one of the leading ones on the way to the implementation of sustainable development policy in the Arctic region.** Potential areas of the joint agenda for sustainable development in the Arctic can be: science and education, environmental protection, development of Arctic resources, green energy, support for indigenous peoples, transport and logistics, sustainable tourism.

Environmental Protection and Combating Climate Change

- Strengthening close cooperation between the BRICS countries and promoting joint efforts on issues related to air and water quality, biodiversity, climate change and waste management (SDG 6 – Clean Water and Sanitation, SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land);
- Creation of a joint platform for coordinating efforts to combat climate change and implement energy transition, taking into account the socio-economic characteristics and capabilities of the BRICS countries.

Science, Education, and Technology

- Exchange of environmentally sound technologies as an international mechanism of public-private partnership (SDG 9 – Industry, Innovation and Infrastructure, SDG 17 – Partnerships for the Goals);
- Creation of the Interpolis program with the aim of integrating the scientific research of the BRICS member countries at the three poles - in the Arctic, Antarctic and Himalayas;
- Financing of green projects by the New BRICS Development Bank (SDG 9 – Industry, Innovation and Infrastructure);
- Holding international conferences and seminars dedicated to the sustainable development of the Arctic region (SDG 17 – Partnerships for the Goals);
- Implementation of student exchange, master's and doctoral programs and joint research in such priority areas as energy, computer science and information security, environmental protection and climate change, water resources and pollution neutralization, economics (SDG 17 – Partnerships for the Goals);
- Holding competitions for financial support of sustainable development projects (within the framework of the BRICS STI) (SDG 9 – Industry, Innovation and Infrastructure);
- The development of modern technologies for observing and predicting changes in the ocean and climate, the viability of the marine ecosystem and polar scientific research, including remote sensing of the relief of the Antarctic surface and space observation from polar regions (SDG 14 – Life Below Water, SDG 15 – Life on Land, SDG 17 – Partnerships for the Goals).

Development of Arctic Resources

- Application of Chinese, Indian, Brazilian and South African investments in the Arctic project "Vostok Oil" (SDG 9 – Industry, Innovation and Infrastructure);
- Expansion of the portfolio of investment projects in the field of liquefied natural gas production "Arctic LNG-2" and "Yamal LNG" (SDG 9 – Industry, Innovation and Infrastructure);
- Joint development of new oil and gas fields in the Arctic using innovative equipment with minimal damage to the environment.

Green Energy

- Joint projects using hydrogen technologies, the development of which is being intensified in the BRICS countries (SDG 7 – Affordable and Clean Energy, SDG 9 – Industry, Innovation and Infrastructure);
- Projects for the construction of wind power plants and the use of tidal energy (SDG 7 – Affordable and Clean Energy, SDG 9 – Industry, Innovation and Infrastructure);
- Using the experience of Brazil, South Africa, China and India in the production of solar panels and the development of solar energy storage technologies (SDG 7 – Affordable and Clean Energy).

Transport and Logistics

- Development of the Northern Sea Route (NSR) as a key transport artery in the Arctic (SDG 9 – Industry, Innovation and Infrastructure);
- Partnership in the field of shipbuilding and expansion of the icebreaker fleet. Attracting investments from Russia's BRICS partners in the «Zvezda» Shipbuilding complex (SDG 9 – Industry, Innovation and Infrastructure);
- Creation of a green shipping corridor in the Arctic, implementation of measures to reduce emissions of pollutants and greenhouse gases through the use of alternative fuels based on LNG and hydrogen (SDG 9 – Industry, Innovation and Infrastructure, SDG 13 – Climate Action);
- Development of an energy efficiency index for Arctic-class vessels (SDG 13 – Climate Action);
- Ensuring maritime safety by organizing joint rescue missions along the Northern Sea Route;
- Using joint satellite technologies to improve navigation along the Northern Sea Route (SDG 9 – Industry, Innovation and Infrastructure);
- Development of the Vladivostok-Chennai and North-South international transport corridors (SDG 9 – Industry, Innovation and Infrastructure).

Support for indigenous minorities of the North

- Ensuring the food security of the population through the development of sustainable agriculture, attracting the experience of China to the construction of vertical farms.
- Creation of a separate platform for discussing problems and protecting the interests of indigenous peoples (SDG 16 – Peace, Justice and Strong Institutions);
- Organization of events and forums about the culture of the indigenous peoples of the Arctic region.

Sustainable tourism

- Creation of an information portal about the Arctic with tourist routes in the national languages of the BRICS member countries.
- Development of a single BRICS payment system based on a basket of national currencies (SDG 17 – Partnerships for the Goals).

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Annex 1. List of Participants in ThinkArctic – ThinkGlobal

1. Abiru Taisuke, Senior Research Fellow Security Studies Program, the Sasakawa Peace Foundation (SPF)
2. Ashik Igor M., Deputy Director for Research, Ph.D. in Geography, Assoc. Prof., Deputy Chairman of the Academic Council, Arctic and Antarctic Research Institute
3. Babaev Kirill V., Acting Director of the Institute of the Far East of the Russian Academy of Sciences, Doctor of Philosophy, Chairman of the Academic Council
4. Boklan Daria S., Deputy Head of Department, Professor, Faculty of Law, Department of International Law, National Research University Higher School of Economics
5. Bouffard Troy, Director of Center for Arctic Security and Resilience at the University of Alaska Fairbanks
6. Breton Gilles, CERBA National Board Chairman
7. Bruno De Conti, Professor, Institute of Economics, University of Campinas, Sao Paulo, Brazil
8. Dankin Maxim, Deputy Director for Regional Development, Information and Analytical Center of the State Commission for Arctic Development
9. Deng Wang, Professor, Dalian Maritime University, College of Transport Engineering and Logistics
10. Devyatkin Pavel, Research Fellow, The Arctic Institute, Washington DC
11. Diesen Glenn, Professor, University of South-Eastern Norway
12. Dutkiewicz Piotr, PhD, Professor, Centre for Governance and Public Management, Carleton University
13. Elias-Piera Francine, Postdoctoral Fellow, Oceanographic Institute, University of Sao Paulo, PhD in Environmental Sciences, Oceanographic Institute, University of Sao Paulo
14. Erokhin Vasily L., PhD, Researcher, Arctic Blue Economy Research Center, Harbin Engineering University, China
15. Frederiksen Mads Qvist, AEC Executive director, Arctic Economic Council
16. Fuhs Paul, President Emeritus, Marine Exchange of Alaska
17. Gao Tianming, Professor, Director and Chief Expert, Arctic Blue Economy Research Center, Harbin University of Engineering, China
18. Glenn Diesen, Professor University of South-Eastern Norway
19. Gubin Andrey V., Ph.D. Sciences, Associate Professor, Department of International Relations, Far Eastern Federal University
20. Gudev Pavel A., Head of the Research Group on US and Canadian Policy in the World Ocean, IMEMO
21. Guo Peiqing, Professor, School of International Relations and Public Administration, Executive Director, Institute of Ocean Policy Studies, Ocean University of China
22. Hataya Sakiko, Research Fellow, Ocean Policy Research Institute of SPF
23. Heininen Lassi, PhD, Professor of Arctic Politics in the Faculty of Social Sciences, University of Lapland, an Adjunct Professor, University of Oulu
24. Hide Sakaguchi, Executive Director of the Sasakawa Peace Foundation (SPF), President of the Ocean Policy Research Institute of SPF
25. Kapoor Nivedita, Post-doctoral Fellow, International Laboratory on World Order Studies and the New Regionalism, Faculty of World Economy and International Affairs, National Research University Higher School of Economics
26. Kashin Vasily Borisovich, PhD, Director of the Center for Comprehensive European and International Studies, National Research University Higher School of Economics
27. Kobylkin Dmitry N., Chairman of the State Duma Committee on Ecology, Natural Resources and Environmental Protection
28. Koivurova Timo, PhD, Research professor, Director of Arctic Centre at the University of Lapland



29. Korchunov Nikolay V., Ambassador-at-Large of the Ministry of Foreign Affairs of the Russian Federation
30. Kumar Sinha Uttam, Senior Fellow, Institute for Defense Research and Analysis. Manohara Parrikara (MP-IDSA)
31. Lackenbauer P. Whitney, PhD, Lead at North American and Arctic Defence and Security Network
32. Lagutin Maria L., Doctor of Political Sciences, Professor of the Department of World Politics, St. Petersburg State University
33. Likhacheva Anastasia B., Dean of the Faculty of World Economy and World Politics, National Research University Higher School of Economics
34. Liu Di, International Project Manager, Chongyang Financial Research Institute, Renmin University of China
35. Long Zhao, Senior Research Fellow, Center for Russian and Central Asian Studies at the Institute for Global Governance Studies
36. Lukin Artem L., Associate Professor of the Department of International Relations, Far Eastern Federal University (FEFU)
37. Lyovkina Anastasia O., Deputy Director for Science of the Financial and Economic Institute, Director of the Center for the Study of the Arctic (Tyumen State University), Professor of the Department of Economic Security, System Analysis and Control, Tyumen State University
38. Magomedova Abidat M., Chair of the International Working Group on Sustainable Development (International SDWG), Arctic Council; Head of the International Cooperation Department of the International Department of the Ministry for the Development of the Far East and the Arctic
39. Makarov Alexander S., Director of the Arctic and Antarctic Research Institute
40. Mikhnevich Sergey V., PhD, Managing Director, Department of International Multilateral Cooperation and Integration, Russian Union of Industrialists and Entrepreneurs
41. Moskalevsky Maxim Y., Scientific Secretary of the Scientific Council of the Russian Academy of Sciences for the Study of the Arctic and Antarctic, Russian delegate to the International Scientific Committee for the Study of Antarctica, Scientific Council of the Russian Academy of Sciences for the Study of the Arctic and Antarctic
42. Nemova Lyudmila A., Ph.D. in Economics, Head of the Department of Economic Problems of Canada Institute of the USA and Canada
43. Niini Mikko, CEO of the Vientistrategit Oy, Arctic & Maritime Consultancy; Chairman of the Navidom Ltd and Rauma Marine Constructions Ltd
44. Nikonorov Sergey M., Director of the Center for Economic Problems of the Development of the Arctic, Professor, Expert on Sustainable Development of the Project Office for the Development of the Arctic
45. Nystén-Haarala Soili, Professor of Commercial Law, Dean of the Faculty of Law, University of Lapland
46. Paikin Zachary, PhD, Nonresident Research Fellow at Institute for Peace & Diplomacy
47. Pan Ming, PhD, Professor, Associate Director of the Center for Polar and Oceanic Studies, School of Political Science and International Affairs
48. Panova Victoria V., Vice-Rector, Member of the Academic Council, National Research University Higher School of Economics
49. Parviainen Sinikka, PhD, Senior analyst at the East Office of Finnish Industries in Helsinki
50. Pozdnakova Alla, Professor, University of Oslo;
51. Ryabova Larisa A., Candidate of Economics, Deputy Director for Research, Institute of Economic Problems named after Luzin of the Kola Scientific Center of the Russian Academy of Sciences
52. Sakwa Richard, Professor, University of Kent
53. Satish Soni, Vice Admiral, PVSM, AVSM, NM (Retd)
54. Sergunin Alexander A., Professor, Ph.D. in Political Science, Faculty of International Relations, St. Petersburg State University



55. Shapoval Aleksey I., Referent of the Department of International Cooperation
56. Sharma BK, Major General, AVSM, SM (Retd), Director of United Service Institution of India
57. Simoes Jefferson Cardia, Polar and Climate Center
58. Sithi KM, Professor, School of International Relations and Politics, Mahatma Gandhi University
59. Soni Satish, Republic of India Navy Officer (1976-2016); Commander-in-Chief South and East Naval Commands Republic of India (2012–2016)
60. Spence Jennifer, SDWG Executive Secretary, Arctic Council
61. Stammler Florian, PhD, Research Professor, Arctic Anthropology Research Group, Arctic Centre, University of Lapland
62. Stepanov Ilya A., Ph.D.
63. Strelnikova Irina A., Ph.D., Research Fellow, Faculty of World Economy and International Affairs, National Research University Higher School of Economics
64. Suresh T.G., Professor, Ph.D. in Economics, Jawaharlal Nehru University
65. Thakur Ravni, PhD., Professor, Department of East Asian Studies, University of Delhi
66. Timoshkov Sergey N., Advisor to the Head of Nationalities Affairs of the Federal Agency for Nationalities Affairs (FADN)
67. Tukkel Iosif L., Professor, Peter the Great St. Petersburg Polytechnic University
68. Van Yali, master's degree student, National Research University Higher School of Economics
69. Varma Datla Bala Venkatesh, Ambassador Extraordinary and Plenipotentiary of the Republic of India to the Russian Federation (2018–2021)
70. Vasiliev Vladimir N., Executive Director of the Northern Forum
71. Velikikh Grigory P., Deputy Director for Expert and Analytical Work of the Roscongress Foundation
72. Venkatesh Varma D.B., Former Ambassador of India to Russia
73. Vyakhireva Natalya S., PhD, Program Manager of the Russian International Affairs Council
74. Wang Wen, Executive Dean of Chongyang Institute for Financial Studies (RDCY), the Deputy Dean and Distinguished Professor of Silk Road School, Renmin University of China, Executive Director of China-US People-to-People Exchange Research Center, Chongyang Institute for Financial Studies (RDCY)
75. Wood Jonathan, PhD Candidate at the University of Iceland and Editor for the *Nordicum Mediterraneum Journal* (Iceland)
76. Yang Cheng, Professor, Shanghai International Studies University
77. Yang Oran, Professor Emeritus, University of California, USA
78. Yang Xiaoning, Legal advisor, Chinese Embassy in Russia
79. Zaika Yulia V., Head of the International Department Federal Research Center “Kola Research Center of the Russian Academy of Sciences”, Secretary of the International Science Initiative in the Russian Arctic, International Arctic Science Committee
80. Zaikov Konstantin S., Doctor of Historical Sciences, Vice-Rector for Information Policy, International and Interregional Cooperation, Northern (Arctic) Federal University named after M.V. Lomonosov
81. Zakharov Aleksey I., Researcher, Institute of Oriental Studies of the Russian Academy of Sciences
82. Zhebit Alexander, Professor, PhD, Center for Philosophy and Humanities, Federal University of Rio de Janeiro
83. Zhou Liqun, President, Elus Union of Chinese Entrepreneurs

Annex 2. Universities Participated in ThinkArctic – ThinkGlobal

Representatives from universities participating in ThinkArctic events



RUSSIA

National Research University Higher School of Economics (Moscow, St. Petersburg, Perm and Nizhny Novgorod)

National Research University Higher School of Economics is one of the leading universities in Russia. It educates specialists in a wide range of fields and carries out numerous fundamental and applied research projects annually. The University hosts the Scientific and Educational Laboratory for Sociological and Humanitarian Studies of the North and the Arctic, aimed at studying the culture of the population of the North. In addition, the Centre for Integrated European and International Studies (CECIS) implements a number of Arctic studies, such as the project "Arctic Region: A New Agenda", aimed at developing solutions to improve state policy development in the Russian Arctic. The University is also initiating international cooperation in Arctic research, such as a joint project with the University of Oslo, the University of Akureyri, and the Arctic Economic Council in 2021-2022.

Lomonosov Northern (Arctic) Federal University (Arkhangelsk)

The university's main goal is to build a scientific base and train staff to defend Russia's geopolitical interests in the Arctic by conducting Arctic research, establishing a system of continuous education, and promoting innovative technological developments. The university is home to Russia's first biomonitoring laboratory for research in the Arctic. In 2020, together with the Russian Ministry of Education and the Ministry for the Development of the Russian Far East, NArFU developed an Arctic development programme to 2035. NArFU is the organiser of the Arctic Floating University 2023 expedition aimed at training Arctic researchers in realistic conditions of northern seas.

Peter the Great St. Petersburg Polytechnic University (St. Petersburg)

The university occupies a leading position among the country's technical universities. Representatives of the university take part in the development of fundamental and practical research on the development of the Arctic. In 2021 the university became a member of the Russian Arctic Research and Education Centre. The university is a platform for discussions on research in the Arctic. For example, in 2019, the International Roundtable 'Logistics in the Arctic: Problems of International Cooperation' was held, and in 2021, the university hosted the 6th International Scientific Conference 'The Arctic: History and Modernity'.

Tumen State University (Tumen)

The university is one of the fastest growing universities in the region and is a part of the UArctic and BRICS Network University. The University is developing educational programmes related to Arctic studies, for example, it has launched an international educational master's programme STEP into Russian Arctic, aimed at preparing a new generation of specialists with in-depth knowledge of the Arctic and understanding of Russia's priorities in the Arctic. In 2021, the university received a grant to implement the project "Arctic Academy for Sustainable Development: Environmentally and Socially Responsible Development of Energy and Resource Base in the Arctic" together with

the Copenhagen Business School (CBS), the University of Helsinki and the University of Northern British Columbia. The goal of the project was to bring together researchers, Indigenous Peoples' organizations, business representatives and governmental organizations to work together in the Arctic.

BRAZIL

Federal University of Rio de Janeiro (Rio de Janeiro)

The Federal University of Rio de Janeiro is the oldest university in the country and educates students in the arts and humanities, engineering and technology, life sciences and medicine, natural sciences and social sciences and management. Sustainable development initiatives are supported by green funding instruments. In addition, long-term targets have been set for energy efficiency, renewable energy generation, water efficiency, and urban mobility using local public transport alternatives.

Institute of Economics, University of Campinas (Bar Geraldo, Campinas)

The University is a key think tank for public economic policy. The university offers undergraduate programs in economics as well as a large number of specialised courses. It is also the country's largest research centre. For students, the university offers further activities on climate research and energy transition, multi-dimensional poverty and food security, among others.

The Oceanographic Institute of the University of São Paulo (USP)

The university currently has two departments, namely: Biological Oceanography and Physical, Chemical and Geological Oceanography. The university has two research facilities, equipped with advanced technology, as well as research vessels in which postgraduate students conduct field research. Given the university's specialisation, staff research is centred around SDG 14 - conservation of marine ecosystems.

CHINA

Dalian Maritime University (Dalian)

Dalian University is the only maritime university under the Ministry of Transport in the PRC that trains maritime professionals such as engineers, biologists, maritime trade specialists, etc. Representatives of the university take part in discussions on the Arctic, for example, in the session "Global and local adaptation to climate change" at the International Climate Conference.

Harbin Engineering University (Harbin)

The University prepares specialists in transport and ocean research. The university hosts a number of research centres aimed at studying the Arctic. For example, in 2023 it opened a laboratory for research on polar ocean acoustics and the application of technology by the Ministry of Education. The university is also a platform for international discussions aimed at developing the Arctic. For example, in May the university hosted the third Sino-Russian Forum on Polar Astronautics

and Information Technology, which discussed the construction of an ice silk road. In addition, Harbin Engineering University, together with Far Eastern Federal University, has established a centre for Arctic research, whose priority is to develop the design of ice-resistant platforms, study the durability of concrete in the Arctic zone, the reliability of engineering structures and ice loads on ships.

Institute of Oceanological Policy Studies, Ocean University of China (Lianyungang)

The university is multi-disciplinary, offering programmes in economics, humanities, medical sciences, management, law, natural sciences, engineering and agronomy. It has a Polar Research Institute, whose main fields of study are international relations and international maritime law.

Chunyang Institute for Financial Studies, People's University of China (Beijing)

It provides training in law, economics, and business. The Chunyang Institute for Financial Studies is formally independent, but the governing body of the Institute is a committee of the People's University. Initially the main topic of the institute's research was global financial markets, but gradually the institute shifted to the study of global issues. The institute offers four programmes, one of which focuses on the study of green finance.

Shanghai Foreign Language University (Shanghai)

The university focuses on linguistics and literary studies and is also known for its studies in international relations and cultural studies. Shanghai University has a joint project with other universities in China and the CCEMI entitled "The Arctic Region: A New Agenda".

INDIA

Jawaharlal Nehru University (New Delhi)

The university provides training in engineering and specializes in technical subjects. The university has a strong focus on multidisciplinary research across a wide range of engineering-related fields. The university hosts the Interdisciplinary Research Cluster for Sustainability Research and takes part in projects like 'South Asian Centre for Sustainable Development and Knowledge Network', 'Urbanization and Sustainability in an Era of Globalization: New Scenarios in the Southwest National Capital Region'.

Mahatma Gandhi University (Kottai)

Mahatma Gandhi University offers several hundred-degree programmes in diverse fields like medicine, journalism, the environment, hotel management and so on. Representatives of the university actively participate in discussions related to the development of the Arctic. The university also hosts the Centre of Excellence for Environmental Studies and Sustainable Development focusing on climate change, green chemistry and green technology, biodiversity conservation, etc.

University of Delhi (Delhi)

The University of Delhi is one of the most prestigious universities in New Delhi, educating

professionals at the highest level in the arts and humanities, engineering and technology, life sciences, social sciences, management and the natural sciences. The University has numerous research centres, such as the Centre for Ecological Management of Degraded Ecosystems, the University Centre for Scientific Instrumentation, the Centre for Interdisciplinary Research on Mountain and Upland Environment, etc.

USA

University of Alaska Fairbanks (Fairbanks)

The University is the largest in the state and is a part of the University of the Arctic. The University has a number of major research departments, among them centres focused on Arctic studies: the Institute of Arctic Biology, which conducts research on high-latitude biological systems; the International Centre for Arctic Studies; the Institute of Marine Sciences; and the Northern Engineering Institute. The University is developing numerous educational programmes related to Arctic studies, such as the Arctic and Northern studies masters programme.

University of California (Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara, Santa Cruz, Berkeley, Davis, Irvine)

The University brings together 10 public Californian universities. The universities that make up the network have programs related to Arctic studies. For example, the University of Santa Barbara has a centre for data, research and instruments for Arctic studies.

NORWAY

University of Oslo (Oslo)

The University of Oslo is the oldest university in the country and is part of the University of the Arctic network. The University of Oslo also actively develops educational programmes related to Arctic studies, e.g. the A changing Arctic programme aims to explore key Arctic issues and interests of members of the Arctic community at local and global levels. The university also has a wide range of projects with an Arctic focus, such as a project to develop a map of permafrost distribution in the northern hemisphere.

University of South-Eastern Norway (Kongsberg)

Kongsberg University is the largest university in the country in terms of number of students, and it offers programmes for training people in the field of Arctic studies, such as a PhD in Marine Operations. It also hosts various projects related to Arctic development, such as a project in cooperation with McMaster University that aims to address global health issues in Arctic communities.

ICELAND

University of Iceland (Reykjavik)

The University of Iceland is part of the University of the Arctic network and develops courses related to Arctic studies, such as the political economy of the Arctic and Arctic Politics in an International Context. It is also a platform for discussion on research in the Arctic.

UNITED KINGDOM

The University of Kent (Canterbury)

The University of Kent is ranked among the top universities in the arts and humanities, social sciences and management, life sciences, engineering and technology, and the natural sciences. The university's main research tracks are migration, the environment, and technological innovation.

FINLAND

University of Lapland (Rovaniemi)

The most northern university in the country is part of the University of the Arctic network. The University of Lapland hosts the Arctic Centre, which conducts interdisciplinary research on changes in the Arctic region, including anthropological research, Arctic governance and environmental projects. The University of Lapland has several projects aiming at international cooperation in the Arctic, such as a project focusing on cooperation in teacher education as part of the global Arctic context, carried out in partnership with other universities in Finland and Norway.

University of Oulu (Oulu)

The University of Oulu is one of the country's leading universities and a major international research centre, which cooperates closely with the research departments of many companies and is also part of the University of the Arctic. The university has a number of programmes aiming at international cooperation in the Arctic, such as a joint education project with universities in Finland and Norway.

CANADA

Carleton University (Ottawa)

The university specializes in technical education and in particular computer science. The university also offers courses related to Arctic studies, such as a course on the dynamics of change in the Canadian North and a course on North and Arctic issues.

Annex 3. International and National Legal Acts Governing Various Aspects of Interaction Between Actors in the Arctic Region: Some Examples

Nº	Name	Effective date	Member countries	Main provisions	Notes
1	The Svalbard Treaty or The Spitsbergen Treaty ³⁰³ (Signed 9 February 1920)	14 August 1925, for USSR – 7 May 1935	Initial 14 parties: USA, UK, Canada, Australia, New Zealand, South Africa, India, Denmark, France, Italy, Japan, Norway, the Netherlands, Sweden. To date: 44 countries (the last to join were Latvia, Slovakia and the DPRK).	The treaty defines the legal status of Svalbard, asserts Norway's sovereignty over the land territory of the archipelago. It also determines the rights of the member countries to use natural resources both on land and in territorial waters, such as: fishing, hunting, export, import and transit of goods, mining (in particular, coal mining). Article 9 separately prohibits Norway from placing or allowing the deployment of military bases and any military fortifications on the territory of the archipelago. Thus, the archipelago is a demilitarized zone.	The Soviet Union was not allowed to sign this treaty for a long time because of issues with the de jure recognition of the state by all parties to the treaty. In February 1935, the Soviet Union officially joined the treaty after having been recognized by the United States. Currently, the agreement is actively used by Russia and Norway. However, there are several unresolved issues between the States concerning this territory, in particular the issue of the international legal status of Svalbard and the adjacent marine areas, the boundaries of the continental shelf and the exclusive economic zone around it.

303 The Svalbard Treaty. [Electronic resource]. URL: <https://docs.cntd.ru/document/902038168?ysclid=ljkbp304rm214986026> (accessed: 18.06.2023)



Nº	Name	Effective date	Member countries	Main provisions	Notes
2	<p>Agreement on the Conservation of Polar Bears³⁰⁴ (Signed 15 November 1973)</p>	26 May 1976	USSR, USA, Denmark, Canada, Norway	<p>The Agreement establishes the obligations of countries to protect ecosystems, in particular polar bears, and the regulation of their population. The Agreement reflects the issues of cooperation within the framework of research programs for the study and conservation of the polar bear. Hunting polar bears is prohibited except for a few cases, including:</p> <ul style="list-style-type: none"> – for scientific purposes, – in order to save, – to prevent violations of the rational use of other living resources, – by the local population using traditional hunting. <p>Hunting with the use of aircraft and large motor vessels is prohibited, as well as export, import, delivery, and trade within the territory of polar bears' habitat.</p>	<p>The meeting of representatives of the member countries³⁰⁵ took place on 25-28 June 2007. The parties exchanged experience in studying the polar bear population and organizing programs for its protection; additional recommendations were developed for the conservation of this species, considering the growing pace of Arctic development and threats associated with the global warming. Later meetings took place in 2009, 2011, 2013 and 2015³⁰⁶. The result of the joint work was the development of a Circumpolar Action Plan for 2015-2025³⁰⁷, which involves cooperation between countries on the conservation and protection of polar bear habitats, ensuring bear extraction management for sustainable traditional nature use, minimizing conflicts between humans and predators, and eradicating illegal trade.</p>

304 Agreement on the Conservation of Polar Bears . [Electronic resource]. URL: <https://docs.cntd.ru/document/1900923> (accessed: 18.06.2023)

305 Polar Bear Range States Meeting Summary // Arctic Council. 2007. [Electronic resource]. URL: https://oaarchive.arctic-council.org/bitstream/handle/11374/832/ACSAO-NO02_16_3_Polar_Bear_Range_States_meeting.pdf?sequence=1&isAllowed=y (accessed: 17.06.2023)

306 Meeting documents // Polar Bear Range States. 2018. [Electronic resource]. URL: <https://polarbearagreement.org/index.php/mid-term-review/meeting-documents> (accessed: 19.06.2023)

307 Circumpolar Action Plan (CAP), 2015-2025 // Polar Bear Range States. 2021. [Electronic resource]. URL: <https://polarbearagreement.org/resources/circumpolar-action-plan> (accessed: 19.06.2023)



№	Name	Effective date	Member countries	Main provisions	Notes
3	<p>The United Nations Convention on the Law of the Sea (UNCLOS)³⁰⁸ (10 December 1982) (with ed. Agreement on the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 23.07.1994)</p>	<p>Effective date for the Russian Federation 11 April 1997</p>	<p>Ratified by 168 countries. These include 164 UN member States, the UN observer State (Palestine), the European Union, the Cook Islands and Niue. One of the significant States that has not signed or ratified the Convention is the United States.</p>	<p>Today the Convention provides a generally accepted international legal framework governing the requirements for maritime jurisdiction and the delimitation of boundaries between national maritime zones, the rights and obligations, including the right to peaceful or transit passage, the right of States to expand the outer limits of the continental shelf, and also establishes a procedure for such actions.</p> <p>The Convention establishes provisions which are necessary to ensure the effective protection of the marine environment.</p> <p>It set a 200-mile exclusive economic zone, the legal regime of which is characterized by the exclusive rights of the coastal States to fishing and in the field of regulation, exploitation and management of all living and non-living resources located in this area.</p> <p>A separate section is devoted to ice-covered areas: coastal States have the right to adopt and enforce regulations on marine pollution from ships in ice-covered areas.</p>	<p>The United States does not participate in the Convention. At the same time, there is a position that they generally consider the basic principles of the Convention as binding on all States.</p> <p>A number of studies have been found that influential non-Arctic actors, such as the European Union and NATO, base their Arctic policy on the priority of the universal norms of the 1982 Convention.</p>

308 The United Nations Convention on the Law of the Sea (UNCLOS). [Electronic resource]. URL: <https://docs.cntd.ru/document/1900747> (accessed: 17.06.2023)

Nº	Name	Effective date	Member countries	Main provisions	Notes
4	The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal ³⁰⁹ (22 March 1989) and Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal ³¹⁰	5 May 1992, for the Russian Federation – 1 May 1995; Protocol -10 December 1999	Currently, there are 191 parties to the Convention, including one association (the European Union), seven Arctic states (the Russian Federation, Iceland, Norway and Canada as independent parties, Denmark, Sweden and Finland as part of the European Union), with the exception of the USA.	The Convention is aimed at preventing harm to the environment and human health that may arise because of improper handling of hazardous waste while their moving across State borders. The document contains a definition of the term «hazardous waste», provides categories and properties of substances that allow them to be classified as hazardous. The provisions of the Convention also enshrine the general principles and obligations of the parties and establish a system of control over the export of hazardous waste. The protocol details the consequences for violators and defines different types of liability.	Persistent organic pollutants are found “in the abiotic and biotic environments” of the Arctic territories, thus the implementation of the principles laid down by the Convention is critically important for these areas ³¹¹ .
5	USSR–USA Maritime Boundary Agreement ³¹² (1 June 1990)	Temporary application from 15 June 1990	USSR, USA	The agreement defines the delimitation of economic zones and the continental shelf in the Chukchi and Bering Seas, and the territorial waters in a small area in the Bering Strait between the Ratmanov (Russia) and Kruzenshtern Islands (USA). The line defined by the Russian - American Convention of 1867 in connection with Russia’s sale of Alaska and the Aleutian Islands to the United States is taken as the basis for the delimitation. The Agreement needs to be ratified.	The application of the Agreement led to the loss of an unjustifiably large territory of the economic zone of the USSR, which was transferred to the United States, and to losses of the Russian fishing industry associated with it. Thus, it led to a violation of international maritime law. Still, in the legislation of the Russian Federation there is no legal justification for the temporary application of the Agreement by the Russian Federation ³¹³ .

309 The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Overview // Basel Convention. 2011. [Electronic resource]. URL: <https://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx> (accessed: 19.06.2023)

310 Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal. 2018. [Electronic resource]. URL: https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-3-b&chapter=27&clang=en (accessed: 19.06.2023)

311 Technical guidelines on the environmentally sound management of wastes containing or contaminated with unintentionally produced polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), hexachlorobenzene (HCB) or polychlorinated biphenyls (PCBs). 02.07.2019. [Electronic resource]. URL: <http://www.basel.int/Portals/4/Basel%20Convention/docs/pub/techguid/tg-dioxifuran.pdf> (accessed: 18.06.2023)

312 USSR–USA Maritime Boundary Agreement. [Electronic resource]. URL: <https://docs.cntd.ru/document/901756969?ysclid=ljkluoph6y283596590> (accessed: 19.06.2023)

313 On the effects of the 1990 Agreement between the Union of Soviet Socialist Republics and the United States of America on the national interests of the Russian Federation. 14.06.2002. [Electronic resource]. URL: http://pravo.gov.ru/proxy/ips/?docbody=&link_id=7&nd=102076562 (accessed: 17.06.2023)



Nº	Name	Effective date	Member countries	Main provisions	Notes
6	Convention on Environmental Impact Assessment in a Transboundary Context ³¹⁴ (25 September 1991)	10 September 1997	Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Moldova, Romania, the Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, UK, USA	A mechanism is envisaged for assessing the environmental impact of potentially hazardous projects not only within the member – State, but the neighboring countries which may be affected by the impact as well. The Convention establishes: <ul style="list-style-type: none"> – the ability of the public to participate in impact assessment procedures, – the need to ensure public access to information about planned activities, – the ability of the public to comment on the proposed activities. 	Many of the principles laid down in the Convention apply in the Arctic region. For instance, Environmental Impact Assessment (EIA) for activities that may have an adverse effect on the environment is provided in the 1991 Protocol on Environmental Protection to the Antarctic Treaty of 1959.

314 Convention on Environmental Impact Assessment in a Transboundary Context. 25.02.1991. [Electronic resource]. URL: https://www.un.org/ru/documents/decl_conv/conventions/env_assessment.shtml (accessed: 18.06.2023)

Nº	Name	Effective date	Member countries	Main provisions	Notes
7	Declaration on the establishment of the Arctic Council or Ottawa Declaration ³¹⁵ (19 September 1996)	19 September 1996	Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden, the USA (referred to in the treaty as the Arctic States)	The Arctic Council was established as an international forum for cooperation on the organization of development and protection of the Arctic environment, dissemination of information, promotion of education and ensuring interest in issues related to the Arctic. Arctic States are recognized as members of the Arctic Council. Arctic organizations of indigenous peoples (the Aleut International Association, the Arctic Athabaskan Council, the Gwich'in Council International, the Inuit Circumpolar Council, the Russian Association of Indigenous Peoples of the North, the Saami Council) are recognized as permanent participants of the Arctic Council. The text of the treaty also specifies the conditions for obtaining observer status in the Arctic Council for various subjects of international law.	The Declaration notes separately that The Arctic Council does not deal with military security issues.
8	Framework Agreement and Protocol on a Multilateral Nuclear Environmental Programme in the Russian Federation (MNEPR) ³¹⁶ (Signed 21 May 2003)	14 April 2004 for the Russian Federation	Belgium, Denmark, Finland, France, Germany, Netherlands, Norway, the Russian Federation, Sweden, UK, USA	The purpose of the document is to develop the organizational and legal basis for long-term cooperation in addressing issues of ensuring nuclear and radiation safety in the North-West of Russia during the disposal of nuclear submarines, the handling of used nuclear fuel and radioactive wastes.	The document is supplemented by a Protocol on Claims, Court proceedings and Exemption from liability (signed together with MNEPR in Stockholm on 21.05.2003). The Protocol guarantees that Russia does not make claims against the Participating Parties, their personnel or contractors in the event of losses and damage as a result of activities carried out in accordance with the MNEPR. In case of claims by a third party, losses and damages are compensated by Russia.

315 Declaration on the establishment of the Arctic Council or Ottawa Declaration. [Electronic resource]. URL: <https://docs.cntd.ru/document/901880137> (accessed: 18.06.2023)

316 Framework Agreement and Protocol on a Multilateral Nuclear Environmental Programme in the Russian Federation. 28.10.2003. [Electronic resource]. URL: <https://www.oecd-nea.org/law/MNEPR-ru.pdf> (accessed:17.06.2023)

Nº	Name	Effective date	Member countries	Main provisions	Notes
9	Agreement between the Governments in the Barents Euroarctic Region on Cooperation within the Field of Emergency Prevention, Preparedness and Response ³¹⁷ (11 December 2008)	17 May 2012 for the Russian Federation	Norway, the Russian Federation, Finland, Sweden	The Agreement defines the procedure and institutional framework for cooperation between the parties in the framework of activities to prevent and eliminate the consequences of emergency situations in the region. Those include joint exercises, notification mechanisms and operational management in case of emergency. The Joint Committee was created by the member parties, bringing together representatives of the relevant departments to implement the Agreement.	
10	The Ilulissat Declaration ³¹⁸ (28 May 2008)	28 May 2008	USA, the Russian Federation, Canada, Norway, Denmark	The Declaration addresses climate change and ice melting in the Arctic region. The States agreed to joint work on: <ul style="list-style-type: none"> – ensuring the safety of people in the region (due to the increasing use of ocean waters for tourism, shipping, scientific research and resource development), – improving the safety of maritime navigation, – prevention or reduction of the risk of pollution from ships of the Arctic Ocean, – making an active contribution to the work of the Arctic Council and other relevant international forums. 	Such countries as Iceland, Finland and Sweden were not invited to the Arctic Ocean Conference. Together with the indigenous peoples of the Arctic (who are also permanent members of the Arctic Council) they were excluded from the Treaty signing process. Denmark was the initiator of the agreement.

317 Agreement between the Governments in the Barents Euroarctic Region on Cooperation within the Field of Emergency Prevention, Preparedness and Response. [Electronic resource]. URL: <https://docs.cntd.ru/document/902187674> (accessed: 19.06.2023)

318 The Ilulissat Declaration. 29.05.2008. [Electronic resource]. URL: https://www.mid.ru/ru/foreign_policy/rso/1716188/ (accessed: 18.06.2023)

Nº	Name	Effective date	Member countries	Main provisions	Notes
11	Treaty between the Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean ³¹⁹ (15 September 2010)	7 July 2011	The Russian Federation, Norway	The Agreement contains data on the maritime delimitation lines in the Barents Sea and the Arctic Ocean between the Russian Federation and Norway. The parties agreed that the new line will divide the previously disputed water area into two equal parts ³²⁰ .	
12	Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic ³²¹ (Signed 12 May 2011)	Effective date for the Russian Federation 19 January 2013	Denmark, Iceland, Canada, Norway, the Russian Federation, USA, Finland, Sweden	The Agreement coordinates international search and rescue activities in the Arctic zone and establishes the area of responsibility of each State (members of the Arctic Council). The Treaty states that the delimitation of search and rescue areas is not related to the delimitation of borders between States.	
13	Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic ³²² (Signed 15 May 2013)	Effective date for the Russian Federation 25 March 2016	Denmark, Iceland, Canada, Norway, the Russian Federation, United States of America, Finland, Sweden	The agreement is created to promote more effective cooperation and interaction between the parties in the framework of prevention and response to oil pollution of the marine area in the Arctic.	The Agreement establishes the precautionary approach and the principle "polluter pays" ³²³ as the basis of interaction.

319 Treaty between the Norway and the Russian Federation concerning Maritime Delimitation and Cooperation in the Barents Sea and the Arctic Ocean. [Electronic resource]. URL: <https://docs.cntd.ru/document/902266343> (accessed: 18.06.2023)

320 Since 1970, there has been a territorial dispute over the border between the states in the Barents Sea. Its essence is that Russia drew the border along the coast of Svalbard Island, Norway believed that the border should be equidistant from Svalbard on the one hand and Franz Josef Land and Novaya Zemlya Island on the other.

321 Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic. [Electronic resource]. URL: <https://docs.cntd.ru/document/902395150?ysclid=ljkl2279vj821324334> (accessed: 19.06.2023)

322 Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic. [Electronic resource]. URL: <https://docs.cntd.ru/document/499065181?ysclid=ljkjafj33511362843> (accessed:19.06.2023)

323 International cooperation in the Arctic. 2013. [Electronic resource]. URL: [Doc_02_Arctica_2013_indd \(russiancouncil.ru\)](https://www.arctic-council.org/~/media/Doc_02_Arctica_2013_indd_russiancouncil.ru) (accessed:18.06.2023)

Nº	Name	Effective date	Member countries	Main provisions	Notes
14	International Code for Ships Operating in Polar Waters (Polar Code) ³²⁴ (Adopted 21 November 2014)	Effective date for the Russian Federation 1 January 2017	The Code was adopted by the International Maritime Organization (IMO), which is an intergovernmental organization – a specialized agency of the United Nations. Currently, 175 Countries are members of IMO, three more States are associated members.	The Polar Code covers issues related to navigation in polar waters; design, construction and equipment of ships; problems of operation and training; search and rescue; protection of the unique ecosystems of the polar regions. The Code addresses the issues of navigation in polar waters, both from the point of view of the structural safety of vessels allowed by the State of registration to sail in such waters, and in terms of ensuring the protection of the marine environment in ecologically vulnerable areas. It contains both recommendations and mandatory provisions in the field of safety measures and pollution prevention. The Code establishes requirements for obtaining a polar vessel certificate that would classify a vessel into categories (A, B, C) for the purposes of their operation in Antarctic and Arctic waters.	The International Maritime Organization (IMO) and its related subcommittees are considering the possibility of applying the Polar Code to ships that are not currently covered by the International Convention for the Safety of Life at Sea (SOLAS). The Polar Code is mandatory for certain vessels in accordance with the SOLAS Convention and International Convention for the Prevention of Pollution from Ships (MARPOL). Chapter V of SOLAS is applied to all vessels on all voyages (with some specific exceptions). Other chapters of the Convention do not apply to certain categories of vessels, including cargo vessels with a gross tonnage of less than 500 tons; pleasure yachts, which are not involved in trade, and fishing vessels (sometimes referred to as «ships, not related to SOLAS»).
15	Agreement on Enhancing International Arctic Scientific Cooperation ³²⁵ (Signed 11 May 2017)	Effective date for the Russian Federation 23 May 2018	Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden, USA	The aim of the Agreement is to ensure an easier process of conducting the international scientific research in the Arctic, to intensify contacts between scientists, to exchange the results and findings, to simplify border crossing and the possibility of sharing research infrastructure. It is envisaged that to facilitate pre-agreed research, the parties open the access the land, coastal, atmospheric and marine spaces in the established geographical areas of the Arctic, in which the States exercise sovereignty, and to areas beyond national jurisdiction on the high seas north of 620° north latitude.	

324 International Code for Ships Operating in Polar Waters (Polar Code). [Electronic resource].
URL: <https://docs.cntd.ru/document/420376046?ysclid=ljki35dlr2636675838> (accessed:18.06.2023)

325 Agreement on Enhancing International Arctic Scientific Cooperation. [Electronic resource].
URL: <https://docs.cntd.ru/document/542624227> (accessed:19.06.2023)



№	Name	Effective date	Member countries	Main provisions	Notes
16	Rules of navigation in the water area of the Northern Sea Route ³²⁶ (18 September 2020)	Approved by the Resolution of the Government of the Russian Federation from 18.09.2020 № 1487. Effective date 30 September 2020	-	<p>The Document provides new rules, applied to ensure the safety of navigation and to prevent and reduce pollution of the waters of the Northern Sea Route (NSR). The Rules contain the procedure for organizing and regulating the navigation of vessels in the waters of the NSR and hydrographic support for ships.</p> <p>The resolution notes that the naval operations headquarters is being created under the leadership of «Rosatom», which will provide there icebreaking wiring of vessels, develop vessel navigation routes and arrange icebreaking fleet.</p> <p>Moreover, in the waters of NSR there is a permissive procedure for vessel navigation. It is noted that to obtain a permit, representatives of the vessel must submit an application in Russian and (or) English to the authorized body. Also, the annexes to the resolution delineate the areas of the NSR waters.</p>	The Decree of the Government of the Russian Federation № 1650 of 19 September 2022 added some amendments to the Rules: however, some provisions have not yet entered into force (the new edition comes into force on 1 September 2023).

326 Rules of navigation in the water area of the Northern Sea Route. 19.09.2022. [Electronic resource]. URL: https://base.garant.ru/74664152/#block_1000 (accessed: 17.06.2023)

Annex 4. Arctic Digest 2022 – 2023

Below is a digest of news from leading countries and statements by major political and public authorities about the Arctic since February 2022. It aims to show the evolution of the official positions of key international actors regarding the development of the region and political situation in it.

03.03.2022 — 7 AC Countries Except Russia

Canada, the Kingdom of Denmark, Finland, Iceland, Norway, Sweden, and the United States discuss launching a special military operation in Ukraine and suspend participation in Arctic Council meetings³²⁷.

17.03.2022 — Government of India

India has published its Arctic strategy. India's Arctic mission is to enhance the country's cooperation in the Arctic region, harmonize polar research with third-pole Himalayan studies, promote efforts to better understand the Arctic region, support international efforts to combat climate change and protect the environment, and advance Arctic research and understanding in India³²⁸.

13.04.2022 — Y.P. Trutnev, Deputy Prime Minister of Russia

In the report on the development of Russia's Arctic zone presented at the meeting with the Russian President, Yury Trutnev noted the need to increase investment in Arctic projects and provide interest rate concessions. It was emphasized that private capital prevails in the Arctic zone: "For 1 budget rouble there are 15 roubles of private investors³²⁹", the politician said. Trutnev also said that no country in the AC can develop the region alone; international cooperation is needed.

17.04.2022 — Ministry of Foreign Affairs of Russia

The Ministry of Foreign Affairs of the Russian Federation stated there are risks of a clash between NATO and Russia in the Arctic because of the North Atlantic Alliance's Cold Response 2022 military exercise in Norway³³⁰.

24.05.2022 — Government of Finland

Finland holds military exercise in the Arctic³³¹.

327 Joint Statement on Arctic Council Cooperation Following Russia's Invasion of Ukraine // U.S. Department of State. 3.03.2022. [Electronic resource]. URL: <https://www.state.gov/joint-statement-on-arctic-council-cooperation-following-russias-invasion-of-ukraine/> (accessed: 30.06.2023)

328 India's Arctic Policy // Ministry of Earth Sciences. 17.03.2022. P.2.

329 Yury Trutnev made a report at a meeting with the President of Russia on the development of the Arctic zone // Government of Russia. 13.04.2022. [Electronic resource]. URL: <http://government.ru/news/45131/> (accessed: 27.06.2023)

330 Russia sees risks of unintended clashes with NATO in Arctic latitudes // TASS. 17.04.2022. [Electronic resource]. URL: <https://tass.ru/politika/14396817> (accessed: 27.06.2023)

331 Finland holds Arctic military exercises // Arctic Today. 24.05.2022. [Electronic resource].

URL: https://www.arctictoday.com/finland-holds-arctic-military-exercises/?wallit_nosession=1 (accessed: 27.06.2023)

01.06.2022 — N.V. Korchunov, Ambassador at Large of the Ministry of Foreign Affairs of Russia

According to Nikolai Korchunov, Russia is ready for the dialogue to continue working of the AC and international cooperation on Arctic issues. Russia is also convinced that there are no problems and challenges in the region that require military intervention³³². Russia looks positively on China's participation in Arctic energy projects.

07.06.2022 — T. Gulovsen, Head of Friends of the Earth (Norway)

Truls Gulovsen has spoken out against Equinor's oil drilling in the Visting field, Norway³³³.

08.06.2022 — 7 AC Countries Except Russia

7 AC countries resume working on the projects not involving Russia³³⁴.

14.06.2022 — Governments of Canada and Denmark

The Governments of Canada and Denmark have signed an agreement to settle the territorial dispute over Tartupaluk Island (Hansa Island), located in the Kennedy Strait between Greenland and the Ellesmere Archipelago of Canada. The parties decided to draw the boundary along a ravine, thereby dividing the island into two equal parts³³⁵.

21.06.2022 — A. Anand, Canadian Defence Minister

Canadian Defence Minister Anita Anand stated that 5 billion euros will be allocated to modernize continental defence in the Arctic region over the next 6 years³³⁶.

30.06.2022 — S. S. Gushchin, Russian Consul General on Spitsbergen Island

Sergey Gushchin stated that Norway prevents delivery of goods to Russians living in the Arctic Archipelago of Spitsbergen. This in fact violates the principle of non-discrimination enshrined in the Svalbard Treaty of 1920³³⁷.

03.07.2022 — South Korea's Daewoo Shipbuilding & Marine Engineering

South Korea's Daewoo Shipbuilding & Marine Engineering has cancelled construction of the second of three liquefied natural gas carriers ordered by Russia's Sovcomflot³³⁸.

332 Russian Chair of the Arctic Council: «The Council's Work Should Be Resumed As Soon As Possible» // High North news. 1.06.2022. [Electronic resource]. URL: <https://www.highnorthnews.com/en/russian-chair-arctic-council-councils-work-should-be-resumed-soon-possible> (accessed: 28.06.2023)

333 Norway Against the Flow with Oil Drilling in the Arctic // High North news. 7.06.2022. [Electronic resource]. URL: <https://www.highnorthnews.com/en/norway-against-flow-oil-drilling-arctic> (accessed: 28.06.2023)

334 The Arctic Council: The Arctic 7 Resume Limited Work Without Russia // High North news. 8.06.2022. [Electronic resource]. URL: <https://www.highnorthnews.com/en/arctic-council-arctic-7-resume-limited-work-without-russia> (accessed: 28.06.2023)

335 Canada and Denmark will split an Arctic island // Polar Journal. 14.06.2022. [Electronic resource]. URL: <https://polarjournal.ch/en/2022/06/14/canada-and-denmark-will-split-an-arctic-island/> (accessed: 28.06.2023)

336 Canada to Spend Billions on Modernizing Air Defense in the Arctic // High North news. 21.06.2022. [Electronic resource]. URL: <https://www.highnorthnews.com/en/canada-spend-billions-modernizing-air-defense-arctic> (accessed: 28.06.2023)

337 Russia accuses Norway of Arctic blockade and threatens reprisals // High North news. 30.06.2022. [Electronic resource]. URL: <https://www.euronews.com/2022/06/29/russia-accuses-norway-of-arctic-blockade-and-threatens-reprisals> (accessed: 28.06.2023)

338 Cancelled: Newbuild carriers destined for Russia's Arctic LNG 2 project // Euronews. 3.07.2022. [Electronic resource]. URL: <https://www.upstreamonline.com/lng/cancelled-newbuild-carriers-destined-for-russia-s-arctic-lng-2-project/2-1-1251811> (accessed: 28.06.2023)

07.07.2022 — Government of France

France has updated its Arctic strategy. Particular emphasis is placed on expanding Arctic research to 2030³³⁹.

31.07.2022 — V.V. Putin, President of the Russian Federation

Vladimir Putin has approved a new Maritime Doctrine of the Russian Federation³⁴⁰. According to the document, the Arctic zone of the Russian Federation and the water area of the Northern Sea Route are part of Russia's national interests as strategically and economically important territories. The country will protect these territories, including with force if necessary.

26.08.2022 — J. Stoltenberg, NATO Secretary General

Jens Stoltenberg, during a joint press conference with Canadian Prime Minister Justin Trudeau, stated that Russia and China are gradually building up their capabilities in the Arctic region, which is a strategic challenge for NATO³⁴¹. Jens Stoltenberg mentioned Russia's reopening of former Soviet military facilities in the Arctic and China's increased investment in many Arctic projects. NATO's response to the active Russian-Chinese development of the Arctic would be to strengthen the Allies' presence in the Arctic region.

31.08.2022 — Secretariat of Brazil's Interministerial Commission for Marine Resources

The Secretariat of the Brazilian Interministerial Commission for Marine Resources published a formal resolution recommending the President of Brazil to ratify the Svalbard Treaty and apply for membership in the Arctic Council. According to the document, Brazil's accession to the Arctic Council will allow the country to participate more actively in research and scientific and technical cooperation activities, promote partnerships with permanent members and observer members of the Council, and strengthen Brazil's position in the international arena³⁴².

07.10.2022 — White House, USA

The U.S. adopted a new national Arctic strategy up to 2032. The strategy emphasizes increased strategic competition in the Arctic³⁴³ due to the geopolitical context in February-March 2022. The strategy focuses on security, climate change and environmental protection, sustainable economic development, international cooperation, and governance. The strategy focuses on maintaining the Arctic Council as the main multilateral forum for the Arctic and expanding the country's presence in the Arctic region.

339 "Balancing Extremes": Is France capable of overcoming the emerging imbalances of Arctic policy? // Go Arctic. 7.06.2022. [Electronic resource]. URL: <https://goarctic.ru/news/uravnoveshivanie-kraynostey-sposobna-li-frantsiya-preodolevat-formiruyushchiesya-disbalansy-arktiche/> (accessed: 28.06.2023)

340 Presidential Decree № 512 of July 31, 2022 "On Approval of the Marine Doctrine of the Russian Federation" // Official network resources of the President of Russia. [Electronic resource]. URL: <http://static.kremlin.ru/media/events/files/ru/xBBH7DL0RicfdtdWP0l32UekiLMTAycW.pdf> (accessed: 14.06.2023)

341 Joint press conference with NATO Secretary General Jens Stoltenberg and the Prime Minister of Canada, Justin Trudeau // North Atlantic Treaty Organization. 26.08.2022. [Electronic resource]. URL: https://www.nato.int/cps/en/natohq/opinions_206908.htm (accessed: 28.06.2023)

342 Resolução Nº 7, de 31 de Agosto de 2022 [Decree No. 7 of August 31, 2022], Secretaria Da Comissão Interministerial Para Os Recursos Do Mar. Diário Oficial da União — Seção 1. 12.09.2022. [Electronic resource]. URL: <https://pesquisa.in.gov.br/imprensa/servlet/INPDFViewer?jornal=515&pagina=17&data=12/09/2022&captchafield=firstAccess> (accessed: 28.06.2023)

343 National Strategy for the Arctic Region // The White House. 10.2022. P.3.

11.10.2022 — Government of Finland

Finland has published a report entitled "Arctic cooperation in a new situation: an analysis of the consequences of Russia's aggressive invasion"³⁴⁴. The report outlines a framework for Arctic cooperation in the new geopolitical context, identifies the limitations encountered and considers options for possible cooperation. The need to adapt Finland's Arctic strategy adopted in 2021 to the "realities of the new Cold War" is emphasized³⁴⁵. The report also stresses the importance of maintaining the Arctic Council's activities in the new context, and of continuing cooperation with Russia despite the suspension of any contacts with it.

13.10.2022 — M.B. Egede, Prime Minister of Greenland

The opening of the Arctic Circle Assembly was addressed by representatives of the indigenous peoples of Canada and Greenland. In particular the protection and support of the indigenous peoples of the Arctic was discussed. Mute Egede underlined that the support measures for the Arctic and Greenland should be in the interest of the local people and the indigenous peoples³⁴⁶.

14-15.10.2022 — R. Bauer, Chairman of the NATO Military Committee

Admiral Bauer stressed the strategic importance of the Arctic to NATO during the Polar Circle Assembly in Iceland, calling it the "gateway to the North Atlantic, hosting vital trade and communications links between North America and Europe"³⁴⁷. According to Bauer, the possible accession of Finland and Sweden to NATO would not only expand the Alliance's influence in the Arctic, but also "define NATO's role in the High North"³⁴⁸. According to Bauer, one of the principles of NATO's Arctic strategy would be to ensure freedom and openness in the region.

17.10.2022 — D. Scholle, adviser to the U.S. State Department

At the briefing on regional issues in the Arctic, Derek Scholle reported on the U.S. intention to increase its influence and presence in the Arctic. In particular, the U.S. is planning to appoint a new ambassador-at-large for Arctic affairs in the Senate, which will testify to the US commitment to participate in managing the Arctic region. Asked about Russia's possible withdrawal from the Arctic Council, the advisor said that Russia is becoming an increasingly difficult partner on all fronts, but that the Council is not considering such a change in its structure. However, the advisor noted that about two-thirds of the Arctic Council's projects, and this includes areas like education, fisheries, things of that nature, can take place without Russia being involved³⁴⁹.

344 Koivurova T. et al. Arctic cooperation in a new situation: Analysis on the impacts of the Russian war of aggression // Prime Minister's Office. 10.2022. [Electronic resource]. URL: https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/164521/VN_Selvitys_2022_3.pdf?sequence=1&isAllowed=y (accessed: 29.06.2023)

345 Ibid. P.9.

346 Arctic Indigenous Leaders Claim the World Stage // High North News. 14.10.2022. [Electronic resource]. URL: <https://www.highnorthnews.com/en/arctic-indigenous-leaders-claim-world-stage> (accessed: 29.06.2023)

347 Chair of the NATO Military Committee highlights strategic importance of the Arctic // North Atlantic Treaty Organization. 16.10.2022. [Electronic resource]. URL: https://www.nato.int/cps/en/natohq/news_208099.htm?selectedLocale=en (accessed: 29.06.2023)

348 Ibid.

349 U.S. National Arctic Policy FPC BRIEFING // U.S. Department of State. 17.10.2022. [Electronic resource]. URL: <https://www.state.gov/briefings-foreign-press-centers/us-national-arctic-policy> (accessed: 29.06.2023)

31.10.2022 — N.V. Korchunov, Ambassador at Large of the Ministry of Foreign Affairs of Russia

Nikolai Korchunov in response to Derek Scholle's statement on 17 October 2022 that most Arctic Council projects could proceed without Russia's participation, underlined the "consensus principle" in decision-making in the Arctic Council³⁵⁰. The Ambassador also noted that the countries' interaction in the Arctic Council was originally based on the principles of cooperation.

16-20.11.2022 — Admiral R. Bauer, Chairman of the NATO Military Committee

Admiral Bauer visited Canada and met with representatives of the Canadian armed forces. During his dialogue with Rear Admiral B. Santarpia, Bauer outlined the importance of U.S.-Canadian cooperation in developing and building a joint presence in the Arctic. The Admiral noted Canada's special contribution to Arctic development and NATO's role in the region³⁵¹.

30.11.2022 — M.V. Zakharova, Director of the Information and Press Department of the Ministry of Foreign Affairs of Russia

At the briefing on current foreign policy issues, Maria Zakharova noted that the potential accession of Sweden and Finland to NATO could lead to an increase in the North Atlantic Alliance's military presence in the Arctic region. If the application is approved, all Arctic Council members, except Russia, would also be members of NATO. Although military security is not part of the AC's remit, the fact that seven of the eight Arctic countries would be members of NATO could lead to increased militarization of the Arctic region³⁵².

01.12.2022 — E. Petersson, State Secretary, Foreign Ministry of Norway

Eivind Vad Petersson, State Secretary of the Foreign Ministry of Norway, spoke about the future of the Arctic Council during the seminar at the Fridtjof Nansen Institute. During his speech, the State Secretary stressed that maintaining the Arctic Council as the most important international forum for handling Arctic issues is one of the main objectives of Norwegian foreign policy³⁵³. In the speaker's opinion, it is necessary to restore and strengthen diplomatic ties to preserve the Arctic Council.

8-9.12.2022 — N.V. Korchunov, Ambassador at Large of the Ministry of Foreign Affairs of Russia

At the XII International Forum "The Arctic: Present and Future" in St. Petersburg, Nikolai Korchunov noted that BRICS, SCO, Latin American, Middle Eastern, and Asia-Pacific countries are showing increasing interest in cooperating in Arctic projects³⁵⁴. For Russia, this means the need to revise its strategy for cooperation in the Arctic and expand cooperation formats and platforms to involve more countries.

350 Russian Foreign Ministry called unfounded statements that the Arctic Council can work without Russia // TASS. 31.10.2022. [Electronic resource]. URL: <https://tass.ru/politika/16202453> (accessed: 29.06.2023)

351 Chair of NATO Military Committee highlights Canadian contributions to the Alliance // North Atlantic Treaty Organization. — 06.12.2022. — URL: https://www.nato.int/cps/en/natohq/news_209223.htm?selectedLocale=en (accessed: 29.06.2023)

352 Russian Foreign Ministry: Sweden's and Finland's accession to NATO may increase militarization of the Arctic // TASS. — 30.11.2022. [Electronic resource]. URL: <https://tass.ru/politika/16465357> (accessed: 29.06.2023)

353 Intensive High North Diplomacy at Work to Ensure the Future of the Arctic Council // High North News. 06.12.2022. [Electronic resource]. URL: <https://www.highnorthnews.com/en/intensive-high-north-diplomacy-work-ensure-future-arctic-council> (accessed: 29.06.2023)

354 St. Petersburg hosted the XII International Forum "The Arctic: the Present and the Future" // Forum "The Arctic: the Present and the Future". — 12.2022. [Electronic resource]. URL: <https://www.forumarctic.com/conf2022/> (accessed: 29.06.2023)

23.01.2023 — V.V. Putin, President of the Russian Federation

Vladimir Putin during the forum “The Arctic. The ice has broken” said that “Russia considers the development of the Arctic region and the conservation of its natural resources to be its priority”³⁵⁵.

27.01.2023 — X. Haapajärvi, State Secretary, Office of the Prime Minister of Finland

In preparation for the Arctic Frontiers international forum, Henrik Haapajärvi noted that Finland plans to develop a new Arctic policy due to the ongoing conflict between Russia and Ukraine, which has an impact on the situation in the Arctic region³⁵⁶. The politician stated that the Russian-Ukrainian conflict has serious long-term implications for Finland’s security policy, including in the Arctic region. Nevertheless, the main provisions of Finland’s current Arctic policy, in particular combating climate change, preserving biodiversity, ensuring the rights of indigenous peoples and the sustainable development of the region, will be maintained.

22.02.2023 — D. Le Boutillier, Canadian Department of National Defence Spokesman

Dan Le Boutillier stated that evidence of Chinese intelligence activities in the Arctic has been found, adding that the military is fully aware of China’s recent attempts to conduct surveillance operations in Canadian air and sea space³⁵⁷. Le Boutillier also added that China’s actions may not be limited to conducting research but may also serve military purposes.

23.02.2023 — Government of the Russian Federation

Russia has revised its Arctic policy. In the updated version of the “Fundamentals of State Policy of the Russian Federation in the Arctic until 2035” the emphasis is placed on ensuring Russia’s national interests in the Arctic, on the country’s self-sufficiency in Arctic technology, and a number of provisions for cooperation within the Arctic Council are excluded³⁵⁸.

28.03.2023 — Government of Norway

With the transfer of the chairmanship of the Arctic Council from the Russian Federation, Norway will continue to pursue a long-term approach in four priority areas: conservation of marine ecosystems and rational management of water resources; environmental protection and climate change; sustainable economic development; and support for Arctic people³⁵⁹. Norway’s cross-cutting priorities are youth and indigenous peoples of Arctic. Norway will focus in particular on reducing black carbon emissions and preventing methane leaks.

355 Russia views development of the Arctic region as a priority // High North News. 23.01.2023. [Electronic resource]. URL: <https://www.highnorthnews.com/en/russia-views-development-arctic-region-priority> (accessed: 30.06.2023)

356 Finland Explores New Direction for Its Arctic Policy // High North News. 27.06.2023. [Electronic resource]. URL: <https://www.highnorthnews.com/en/finland-explores-new-direction-its-arctic-policy> (accessed: 30.06.2023)

357 Canada’s military tracked Chinese surveillance in the Arctic // BBC. 22.02.2023. [Electronic resource]. URL: <https://www.bbc.com/news/world-us-canada-64727713> (accessed: 30.06.2023)

358 Presidential Decree № 112 of 21.02.2023 “On Amendments to the Principles of State Policy of the Russian Federation in the Arctic for the period up to 2035, approved by Presidential Decree № 164 of March 5, 2020” // Official publication of legal acts. [Electronic resource]. URL: <http://publication.pravo.gov.ru/Document/View/0001202302210004> (accessed: 30.06.2023)

359 Priorities for Norway’s Chairship of the Arctic Council // Government of Norway. 28.03.2023. [Electronic resource]. URL: <https://www.regjeringen.no/en/aktuelt/priorities-for-norways-chairship-of-the-arctic-council/id2968499/> (accessed: 30.06.2023)

05.04.2023 — U.S. Department of Defense

The U.S. will review the Department of Defense's 2019 Arctic Strategy³⁶⁰. It is emphasized that geopolitical events, such as the conflict between Russia and Ukraine and Finland and Sweden's successful bid to join NATO, require changes and revisions to several provisions of the current U.S. Department of Defense Arctic Strategy. After 2019, the U.S. has intensified its engagement with its allies in Northern Europe and within NATO, which will also be reflected in the updated Arctic strategy.

20.04.2023 — Participants of the Conference "Dialogue in the High North"

In three weeks, Norway is due to take over the Arctic Council presidency from Russia. "We have to cross the bridge of transition of the chairship. That is the most important next phase. Once we have done that, we have to discuss other issues of how we move forward with the cooperation. So far, we have been able to continue with the projects without Russia in this new situation"³⁶¹, said the Finnish Ambassador to Norway, Teemu Tanner.

"Any form of political cooperation with Russia is now out of the question. But there are still opportunities to continue the work in the Arctic at a lower level. Intensive work is now being done to achieve sufficient agreement and understanding around this," said Petersson, state secretary of the Norwegian Ministry of Foreign Affairs.

"Climate and environment, the oceans, people in the north, and sustainable economic development – the key priorities of Norway's chairship – are the things we believe to be important and relevant now. They are important globally, but also possible to cooperate on – even in the political climate we are in at the moment," Petersson added. He also said, "Russia has not been expelled from the Arctic Council. It has not withdrawn. There are no plans to expel Russia from the Council. Still, business as usual at the political level now is out of the question".

27.04.2023 — Military Leaders from 11 Allies and NATO Partner Countries, Arctic Security Forces Roundtable (ASFR)

The roundtable, organized by Finland after its accession to NATO, brought together more than 50 senior military leaders from 11 Allied and partner countries to discuss issues of paramount importance to security in the High North.

"As we gather here in Finland's oldest city, it is important to recognize Finland's vital and long-standing role in Arctic security. As the newest member of NATO, Finland strengthens our collective defense and enhances our ability to address regional security challenges, especially in the Arctic,"³⁶² said Rear Admiral Solveig Krey, chief of operations at the Norwegian Defense Staff and co-chair of

360 US Department of Defense Working on Updated Arctic Strategy // High North News. 05.04.2023. [Electronic resource].

URL: <https://www.highnorthnews.com/en/us-department-defense-working-updated-arctic-strategy> (accessed: 30.06.2023)

361 Norway MFA: «Russia Has Neither Been Expelled nor Withdrawn From the Arctic Council» // High North News. 20.04.2023. [Electronic resource].

URL: <https://www.highnorthnews.com/en/norway-mfa-russia-has-neither-been-expelled-nor-withdrawn-arctic-council> (accessed: 30.06.2023)

362 International military leaders in Finland for Arctic Security // US European Command. 27.04.2023. [Electronic resource].

URL: <https://www.eucom.mil/pressrelease/42356/international-military-leaders-in-finland-for-arctic-security> (accessed: 30.06.2023)

ASFR. "We continue to welcome Finland's contribution to this important forum and look forward to continuing our partnership in support of a stable and secure Europe," she added.

11.05.2023 — Arctic Council

The transfer of the Arctic Council chairmanship from the Russian Federation to Norway took place³⁶³.

31.05.2023 — NATO

NATO begins first military exercise in the Arctic with Finland, which became a member of the alliance in April 2023³⁶⁴. In addition to Finland, servicemen from Norway, Great Britain, the United States, and Sweden are taking part in the exercise

17.06.2023 — Government of Brazil

Brazil has decided to send the Arctic I expedition to the Arctic. It is scheduled for July 12, 2023, and involves a trip of five Brazilian researchers from different universities to Longyear, the administrative region of Spitsbergen³⁶⁵.

27.06.2023 — J. Trudeau, Prime Minister of Canada

During the meeting of the Nordic heads of government in Reykjavik, Justin Trudeau expressed his hope to resume cooperation with Russia within the framework of the Arctic Council³⁶⁶.

28.06.2023 — Standing Committee on National Security, Defence and Veterans' Affairs of Canada

A new report released by Canada's Standing Committee on National Security, Defence and Veterans' Affairs argues that the interpretation of Arctic security should be broadened beyond the military to include social, economic, and environmental issues³⁶⁷. The report notes that while some previous Canadian government actions to increase military security in the Arctic, such as the forced relocation of Inuit to ensure Canadian sovereignty in the Arctic during the Cold War, have harmed the region's indigenous communities, decisions regarding Arctic security and defense must now be made with the full participation of local indigenous governments.

363 Norway takes over presidency of Arctic Council from Russia // AP. 11.05.2023. [Electronic resource].

URL: <https://apnews.com/article/norway-russia-arctic-council-ukraine-84c595b4a0afef03ab2d053bf8b659b6> (accessed: 30.06.2023)

364 NATO launches Arctic exercises, pledges protection of Finland // Aljazeera. 31.05.2023. [Electronic resource].

URL: <https://www.aljazeera.com/news/2023/5/31/nato-launches-arctic-exercises-pledges-protection-of-finland> (accessed: 30.06.2023)

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Annex 5. Scenarios for International Cooperation in the Arctic by 2030 by Key Factors

Criteria	S1. «Arctic Reset»	S2. «Isolation of Russia»	S3. «Arctic without borders»	S4.»Stagnation in Arctic Cooperation»
Functionality of International Institutions in the Arctic Region	High functionality of international institutions in the Arctic. An active dialogue is resumed, the main platforms and working groups continue their work, programs and projects within the framework of the Arctic Council, the Barents/Euroarctic Council, and the CBCs with Russia and the EU also resumed. The AU can be granted the status of an international organization. Russia is getting involved in previous formats and is able to exert influence on negotiating platforms and shape the agenda.	The functionality of international institutions in the Arctic is rather low. New projects are emerging, but not to a large extent and with a limited number of actors. The weight of platforms for cooperation in the Arctic is decreasing due to Russia's isolation. Russia participates in international cooperation in the Arctic only on a bilateral basis to a limited extent.	High functionality of international institutions in the Arctic. However, rapid development and emergence of new projects, initiatives and agreements does not take place. Russia has opportunities to promote its interests on multilateral platforms in the Arctic and to build alternative foreign economic and political partnerships.	Low functionality of international institutions in the Arctic. Russia is being isolated and has no opportunity to uphold its interests on international platforms in the Arctic. In general, there is a decline in the role of international institutions, the role of international cooperation is gradually declining.
Degree of Involvement of Non-Arctic Countries in Multilateral Cooperation in the Arctic	More non-Arctic countries are getting involved in multilateral cooperation in the Arctic, new formats and organizations for international cooperation in the Arctic are emerging. Asian states continue to participate in the activities of Arctic institutions in general at the same level, cooperating with Russia due to the reduced effect of secondary U.S. sanctions.	Significant involvement of non-Arctic countries, including Asian countries, in Arctic platforms and formats can be observed as the demand for energy resources and the need for maritime transport routes grow.	Insignificant involvement of new non-Arctic countries in multilateral cooperation in the Arctic due to the weak global economic recovery, but their interest in the Arctic remains because of the region's fragility and global importance. The long-term prerequisites for revising Article 234 of the UN Convention on the Law of the Sea are being created.	Low involvement of non-Arctic countries amid weak recovery and high confrontation of the global economy.

Criteria	S1. «Arctic Reset»	S2. «Isolation of Russia»	S3. «Arctic without borders»	S4.»Stagnation in Arctic Cooperation»
Degree of fragmentation of the system of multilateral cooperation	The fragmentation of multilateral cooperation in the Arctic is minimal. The Arctic Council holds its role as the leading institution in the Arctic. No substantial and functional platforms are created in opposition to the Arctic Council. Russia continues to build partnerships with China and India.	The preconditions for higher fragmentation of multilateral cooperation in the Arctic in the long term are created due to Russia's isolation and the continued interest of non-Arctic states in realizing the region's potential. Significant domination of Western countries in international Arctic institutions.	Several preconditions for higher fragmentation of multilateral cooperation in the Arctic are created due to the enhanced opportunities for cooperation between Russia and non-Arctic countries.	Low fragmentation due to lack of objective opportunities and interest of non-Arctic countries in the Arctic
Priorities for Arctic cooperation	Many opportunities for economic, financial, technological, and socio-cultural cooperation. Transport and infrastructure development, renewable energy, and digitization projects are under development.	Multilateral cooperation is limited to environmental protection, including combating climate change and social support for the Arctic population.	Multilateral cooperation in the field of environmental protection goes on, socially-oriented projects are implemented. Due to weak recovery, there are few actual opportunities for large capital-intensive projects and agreements (in infrastructure and mining).	Multilateral cooperation is limited to politically neutral issues of environmental protection, including combating climate change and social support for the Arctic population.

Source: compiled by the authors



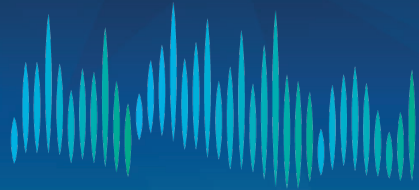
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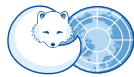
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