

REVIEWS

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Scientific and educational space of the Arctic: Norway¹

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Abstract. The analytical overview represents the scientific and educational potential of the Norwegian territories of the Circumpolar Region (Svalbard, Finnmark, Troms and Nordland), Norway's science and innovation policy and scientific interests in the Arctic.

Keywords: *Norway, Spitsbergen, Svalbard, Finnmark, Troms, Nordland, Arctic, science, innovations, university, scientific and educational policy*

Scientific research in the Arctic is important for combating climate change, environmental security, preservation of biodiversity, as well as to carry out the tasks important for the Russian Federation: to secure the limits of the continental shelf; development of the Northern sea route, the solution of socio-economic development problems in the Arctic, cooperation with international organizations and associations, the Arctic Council and the Council of the Barents Euro-Arctic re-

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gion. In this connection, it is necessary to study the foreign experience of scientific and education development of the Arctic. Scientific and educational strategies for Arctic states, their potential in science and education still have not become the subject of a particular study². Although the scientific and educational policy of Norway has been discussed in a number of articles [1]. Consequently, the authors of this article aim to analyse and present a comprehensive overview of the state of scientific and innovation policy of Norway in the North.

Innovation policy in the sphere of science, education and the economy

A modern national system Norway's economy began to take a shape in 1960s — 1970s. At the initial stage, it included public funding of scientific research, tax policy, the creation of flexible structures for the management of high-tech industries. Today, Norway takes measures for not only the development of technological innovations, but also social and organizational development and marketing. The priority is the support of scientific and technological innovation. Norway got its institutionalized and incorporated system based on the following components: state structure and organization — responsibility centers to implement innovation policy; subsidies and tax regulations of research, development and innovation; the branched network of research centers, centers of innovation expertise, advanced technological expertise, technology parks.

The work on the formation of the state innovation policy and research of Norway is exercised by *the Ministry of Commerce, industry and fisheries and the Ministry of education and science* under the direction of two organizations: Organization of Innovation in Norway (Innovasjon Norge) and State Industrial Development Corporation of Norway "SIVA." Both institutions promote innovation activities in the country. The Ministry of education and science of Norway operates the Research Council of Norway (see fig. 1). *Norwegian Research Council* implements the science and technology policy, including public subsidies for research and development programmes, development of innovation in the economy, promotes research activity and its results at international level. *"Innovation Norway"* provides support for export-oriented innovation entrepreneurship, aimed at promoting the Norwegian innovation on the international market. *Corporation "SIVA"* promotes the organization of high value added production through the provision of facilities for the business, grant support to the establishment of business incubators and technology parks. In addition in Norway innovation policy is done by the *Foundation for scientific and industrial research*, SINTEF (Stiftelsen för industriell og teknisk forskning), founded in 1950 in Trondheim. The purpose of the Fund is support and investing in the development of innovations in areas such as

² Saburov A.A. Norvezhskie issledovaniya v Arktike. URL: http://russiancouncil.ru/inner/?id_4=2608#top (Accessed: 11 March 2016)

renewable energy, climate and environmental technologies, oil and gas, marine technology, health and well-being, new materials.

Norway had adopted a number of documents relating to the financial support of the national innovation system. In 2012, the Norwegian Research Council adopted an updated version of *"the strategy for the development of national research infrastructure"* (Norway's national research infrastructure strategy for 2012—2017). In March 2013, the Norwegian Government presented a white paper on long-term prospects of national scientific and technological policy of *"long-term prospects — knowledge, giving opportunities"* (Lange linjer - kunnskap gir muligheter) and *Priority areas for innovation and development in Norway*. According to the listed documents, the following areas are recognized: oil and gas industry; information and communication technologies; bio-and nanotechnologies; shipbuilding and ship machinery; Ecology; renewable energy and resource efficiency; medical technologies. Tools for financial support of an innovative economy, development programme — FORNY2020, VRI, SkatteFUNN and programmes of the Norwegian Research Council. *FORNY2020 Program* aims to commercialize the results of development held in publicly funded research institutions, and the promotion of innovative products and services to market. It provides funding for newly established companies and generates the growth of existing ones, provides interoperability between developers and users of new technologies.

Program VRI (2007—2017) focuses on support for innovation, knowledge development and value-added through regional cooperation and the strengthening of research and development. Purpose of realization the VRI is the development of cooperation between the system of higher professional education, innovative institutes and enterprises. *SkatteFUNN Program* focused on commercial enterprises engaged in research and development, to support innovation in the field of trade, industry and services. The program implements an indirect mechanism for financial support through the tax deduction of up to 20% of the costs associated with research activities. Costs must be documented and recorded in the accounts on projects. In addition to these targeted programs, Innovation Norway has turned to support companies through individual research and development contracts between producers and users as parties in the business (IRD) or business and Government (OFU) in order to support the creation of new products, production processes and services.



Figure 1. The national system of innovation in Norway

In Norway the network of *“research innovation centres”* (Sentre for forskningsdrevet innovasjon, CFI) has been designed to encourage companies in innovation through long-term studies that promote active cooperation between innovation companies and well-known research groups, the development of localized industry-oriented research clusters, which are at the forefront of international research community and are an integral part of a dynamic international networks, professional training in areas of importance for the business sector. Currently, there operates 21 Center in Norway; among them is the Center for innovation in aquaculture technology (CREATE), Center for integrated operations in the petroleum industry (IO Center), laboratory of medical imaging (MI Lab), laboratory of telemedicine Tromsø (TTL), Cardiology Center of innovation (CCI). The Norwegian Research Council, Innovation Norway and the Corporation SIVA. In 2006 Norway organized the *Norwegian centres of expertise* (NCE) to intensify innovation activity industrial clusters. In 2015, Norway

registered 14 centres with funding of 150 million NOK: NCE Aquaculture aims, NCE NCE Instrumentation Tourism-Fjord Norway, NCE Seafood Innovation Cluster, NCE NCE Maritime Media, CleanTech, NCE, NCE Culinology Eyde, Micro-and Nanotechnology NCE, NCE Systems Engineering Kongsberg, NCE Oslo Cancer Cluster, NCE Health Technology, NCE Raufoss, NCE Smart Energy Markets.

The Norwegian Research Council implemented activities to create *centres of excellence* (Sentre for fremragende forskning, SFF) with leading universities and research institutes. The primary objective of the centres is achieving concrete results at the global level, carrying out long-term research and training of scientific staff. They have 21 centers like that.

The University of Oslo established the Centre for the Study of Mind in Nature (CSMN), Centre for Immune Regulation (CIR), Centre for Ecological and Evolutionary Synthesis (CEES), Centre for the Study of Equality, Social Organization, and Performance (ESOP), Norwegian Centre for Mental Disorders Research (NORMENT). The University of Tromsø together with the University of Oslo founded the Centre of Theoretical and Computational Chemistry (CTCC).

Its activities are concentrated in 13 industrial parks that develop links between research bodies and industrial companies and organizations that support a close relationship with universities, institutions and independent research centres. Leading technology park of Norway is Oslo *Science Park* (Oslotech) founded in 1986. Shareholders are the University of Oslo, SIVA and a number of key industry players, such as the Norwegian Hydro, Pareto, Dyno, and others.

In the North of the country, since September 2015 Tromsø and Alta research communities organized the *Norwegian Research Institute Norut (Northern Research Institute)* that is a national research and innovation center of research, development and commercialization in biotechnology, information and communication technologies, Earth observation and social sciences, including for the needs of economic and social development of the Arctic region. In addition, Norway develops a network of business-incubators that allow you to create conditions for the development of innovative enterprises at the stage of the beginning of their work.

In the economic sphere Norway distinguishes from other countries of the Arctic region, its studies are focused on the exploitation of primary resources, which forms narrow directions of development of the high-tech sector of the national economy. Thanks to the system of tax deductions when implementing research projects, the program of “Oil and Gas in the 21st Century”; and thanks to quite high taxation of energy extraction that stimulates companies in developing and applying the latest technologies which reduce the costs of mining operations. It is allowed to develop research in the field of technology of deepwater offshore drilling and production of oil and gas, stock monitoring systems. Advances in these areas began to develop other accompanying di-

rections of scientific knowledge — information and communication technologies, shipbuilding, ecology, renewable energy. Despite this, innovation activity in Norway is recognized as one of the lowest among European countries. Analysis of statistical data shows that Norway's spendings on research and development in 2011–2013 are only 1.63% of the GDP of the country, that is 2 times less than in Sweden and 1.8 times lower in Denmark (table 1).

Table 1

Research and development expenditure in total GDP in 2003-2013, %³

Year country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Denmark	2,51	2,42	2,39	2,4	2,51	2,78	3,07	2,94	2,97	3,02	3,06
Iceland	2,73	-	2,69	2,91	2,56	2,53	2,66	-	2,49	-	-
Norway	1,68	1,55	1,48	1,46	1,56	1,56	1,72	1,65	1,63	1,62	1,65
Sweden	3,61	3,39	3,39	3,5	3,26	3,5	3,42	3,22	3,22	3,28	3,3

The index for Norway has been characterized by a slight change in the trend toward reduction or increase; Sweden and Denmark show a small but steady growth (fig.2)

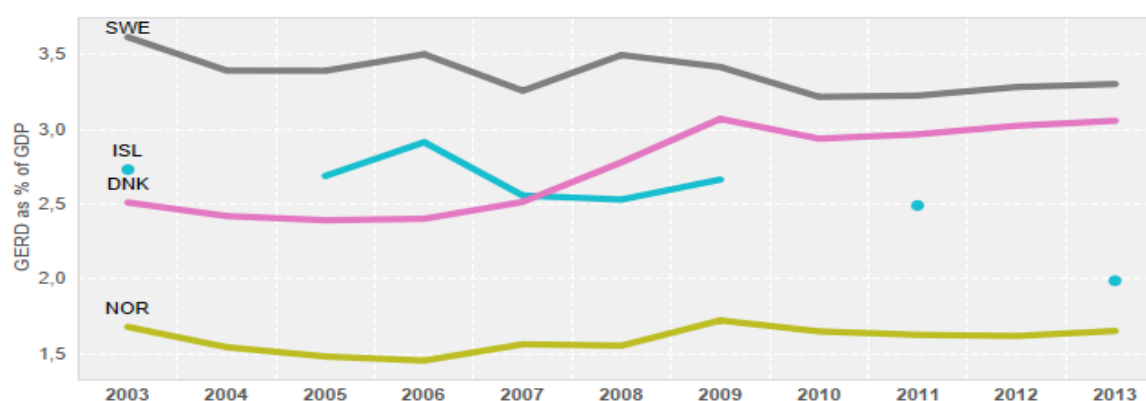


Figure 2. Expenditures on research and development in Norway in the volume of GDP in 2003 -2013, %⁴

At the same time, Norway annually increases volumes of r and d funding in cash. In 2013, it was 50.98 million spent. Norwegian. EEK, that 6% more than the previous period, but generally lower than Sweden and Denmark (table 2).

Table 2

Research and development expenditure in Norway in 2003-2013, in billions. Nok⁵

Country	Year										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Denmark	36,07	36,43	37,96	40,42	43,74	49,96	52,61	52,83	54,38	56,43	57,65

³ The Nordic Institute for Studies in Innovation, Research and Education (NIFU). URL: <http://www.foustatistikbanken.no/nifu/?language=en> (Accessed: 01 September 2015)

⁴ OECD.Stat. URL: http://stats.oecd.org/Index.aspx?DataSetCode=MTI_PUB# (Accessed: 01 September 2015)

⁵ NIFU/Statistics Norway. URL: <http://www.foustatistikbanken.no/nifu/?language=en> (Accessed: 15 October 2015)

Iceland	23,72	-	28,44	34,96	35,13	39,17	42,24	-	42,42	-	-
Norway	27,21	27,53	29,50	32,25	36,77	40,53	41,89	42,76	45,44	48,04	50,98
Sweden	96,77	95,13	98,57	108,48	107,37	118,40	112,33	113,21	117,89	120,91	124,63

In 2013, 31.2% of all enterprises in the countr carried out technological innovations (2011 — 33.7%); proportion of expenses for technological innovation in the total volume of shipped goods, works and services performed amounted to 0.90%; in Denmark this rate is 3.45%, Sweden — 2.98%. Proportion of innovative goods, works and services in the total volume of goods shipped, works performed, services made up in 2011 — 4.6% and in 2013 — 6.1%. In Sweden, these indicators made 9.2% and 8.4% respectively [2]. In Norway, 46% of the cost of research and development, public expenditures accounted for 43% in the business sector; the rest is higher education, NGOs and foreign sources.

Table 3

Funding of SRD in Norway 2009—2013, mln NOK

<i>Sources of funding for Research and Development</i>	<i>Year</i>				
	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
The business sector	18 267.5	..	83.3 20	..	919.4 21
The public sector	19 588.6	..	21 151.3	..	23 261.5
The higher education sector	179.9	..	168	..	267.3
Non-profit organization	414.2	..	499.7	..	520.2
Foreign sources	3 434.3	..	3 538.1	..	4 833
The total volume of	41 884.5	42 759.1	440.4 45	48 43.5	50 801.4

It is being actively discussed in the scientific literature perspective — "Norwegian paradox", based on the following basis — despite low innovation of Norway's economy in recent years, it is relatively wealthy and has a high economic performance. However, in our view, innovation cannot be regarded as the only catalyst for growth. In the case of Norway, the main cause of high development indicators of the economy are became of available natural resources, coupled with favorable conditions over the past 20 years on international energy markets. For the generalized integrated assessment of the innovation sphere in Norway, lets turn to the overall development of its innovative component. The Global Innovation Index, or rating of the world's countries in terms of innovation on the international business school INSEAD ⁶, prepared in 2012—2014, testifies to the stable high positions of Norway (14, 16 and 14, respectively). The position of Norway in innovation ranking of the European Commission as a whole, are similar to the GII data.

⁶ Global Innovation Index 2014. URL: <http://www.globalinnovationindex.org/content.aspx?page=GII-Home> (Accessed: 01.09.2015)

Table 4

Norway in international ratings

Rating	Institution	Position		
		2013	2014	2015
Global Innovation Index ⁷	Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO)	16	14	20
Innovation Union Scoreboard ⁸	European Commission	17	16	16
Innovationsindikator ⁹	Tysk BDI Deutsche Telekom Stiftung	8	7	14

International rankings of Innovation Norway belongs to the countries of moderate innovators. In the presence of high levels of human resources, public research systems, development of markets for goods, labour and financial markets, there are relatively low levels of investment and their economic impact, development of infrastructure and promotion of innovative enterprises.

Thus, the state, through the extensive network of technology parks, business incubators, innovation centers when interacting with the business-research institutions and not-for-profit organizations stimulates research and innovation designing activity in Norway, commercialization of research results. Direction of the technological modernization of the Norwegian economy remained the same over the past few years. Emphasis is placed on the development of scientific research and innovation and international scientific-technical cooperation. Considerable attention is paid to industries that the state considers the priorities for the economies of countries.

Research policy

In Norway the formation and implementation of the research policy, as well as innovation policies are within the competence of the Ministry of education and science and The Ministry of Commerce, industry and fisheries of Norway. The Ministry of education and science of the formation and implementation of the research policy are engaged in research department¹⁰, the Research Council of Norway¹¹. In the Ministry of industry, Commerce and Fisheries it is Department of research and innovation¹² and establishments under the Ministry — Innovation Norway (Innovasjon Norge)¹³, as well as State Industrial Development Corporation of Norway, SIVA. Formation of

⁷ Global Innovation Index. URL: <https://www.globalinnovationindex.org/content/page/GII-Home> (Accessed: 01.09.2015)

⁸ Innovation Union Scoreboard. URL: http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards/index_en.htm (Accessed: 01.09.2015)

⁹ Innovationsindikator. URL: <http://www.innovationsindikator.de/ergebnisse.html> (Accessed: 01.09.2015)

¹⁰ Department of research. URL: <https://www.regjeringen.no/en/dep/kd/organisation/Departments/departement-of-research/id1552/> (Accessed: 01.09.2015)

¹¹ The Research Council of Norway. URL: http://www.forskningsradet.no/en/Home_page/1177315753906 (Accessed: 01.09.2015)

¹² Research and Innovation Department. URL: <https://www.regjeringen.no/en/dep/nfd/organisation/Departments/research-and-innovation-department/id528252/> (Accessed: 01.09.2015)

¹³ Innovation Norway. URL: <http://www.innovasjon Norge.no/en/start-page/> (Accessed: 01.09.2015)

sectoral areas engaged in policy research within its competence and other ministries of the Government of Norway Norwegian Polar Institute, implements research policy in the Arctic, is subordinate to the Ministry of the Environment Agency.

Funding of research institutions, universities and colleges as target allocations and in the form of grant support, implemented through the Research Council of Norway, which account for about 25% of the total public funding for research and development in Norway. The Research Council budget in 2013, amounted to 7.4 billion kroner (roughly as in 2012)¹⁴ and 8.5 billion kroons in 2015 the main contribution to the budget of the Council give the Ministry of education and research and the Ministry of industry, trade and fisheries. Money the Council allocates projects usually on a competitive basis, they also spent on improving infrastructure, are sent to universities for research. By 2020, the Norwegian Research Council plans to increase public spending on science to the level of 1.2% of GDP, while increasing its share in the financing of research activities in Norway.

A substantial proportion of the programmes of financial support for research activities in Norway takes support international projects. For example, the cost of "innovative" Norway in 2014 on international research projects accounted for 50% of all funds spent. The asserted total spending of Norway at the European framework programme Horizon 2020 will amount to 16 billion NOK, or 2 billion euros¹⁵. Fundamental documents forming the objectives and tasks of scientific and research policies in Norway, as well as research priorities and target indicators is a complex national strategies: Research for innovation and sustainability: the strategy of the Research Council of Norway in the period 2015-2020 timeframe. (Research for innovation and sustainability: strategy for the research council of Norway 2015-2020)¹⁶; International strategy for the period 2010-2020 (International strategy 2010-2020)¹⁷; The strategy for the development of national research infrastructure for the period 2012-2017 timeframe. (National strategy for research infrastructure 2012-2017); as well as a set of sectoral and regional strategies and programmes¹⁸.

The Norwegian Research Council's Strategy for the sector research institutions for the period 2014-2018 timeframe. The Research Council's strategy for the research institute sector 2014-

¹⁴ The research budget. URL: <http://www.forskningradet.no/en/Budget/1185261825597> (Accessed: 01.09.2015)

¹⁵ Norway to participate in Horizon 2020. URL: <http://horizon2020projects.com/global-collaboration/norway-to-participate-in-horizon-2020/> (Accessed: 01.09.2015)

¹⁶ Main strategy of the Research Council. URL: http://www.forskningradet.no/en/Main_strategy_of_the_Research_Council/1185261825635 (Accessed: 11 March 2016)

¹⁷ Strategy for International Cooperation 2010–2020. URL: http://www.forskningradet.no/en/International_strategy/1253964686548 (Accessed: 11 March 2016)

¹⁸ Other strategic plans and policy documents. URL: http://www.forskningradet.no/en/Other_strategic_plans/1185261825639 (Accessed: 11 March 2016)

2018; The Research Council's policy for R&D at university colleges 2014-2018; The Research Council's policy for basic research 2015-2020; Regional policy 2014-2018.

Research policy in the Arctic

The objectives of the research the Norwegian policy are to achieve and maintain sustainable development of a society based on green technologies, and increasing the share of high-tech industries in all sectors of the economy. Research policy objectives include: increasing investments in advanced research and innovation; quality improvement and increase in volumes of Norwegian research; support for research and development, aimed at finding lasting solutions to the development of society and business; stimulate the development of an innovative economy; the total increase of innovative technologies and their availability in all spheres of public activity; strengthening international cooperation and active participation in the research initiatives of the EU. Priority directions of research activities, in general, correspond to the priorities of the scientific innovation policy: oil and gas industry; information and communication technologies; bio-and nanotechnologies; shipbuilding and ship machinery; Ecology; renewable energy and resource efficiency; medical technologies.

Development of education and science in the North and international cooperation in the Arctic region, the Norwegian authorities pay great attention to the mid-2000s. the regulatory framework suggests that the Arctic will remain a priority region for the Norwegian Government in the next few decades. It should be noted that the national specifics of the conceptual apparatus is the practice of naming polar and polar regions of the country districts of the far North, as reflected in *the strategy for the development of the far North (Nordområdene : Visjon og virkemidler)* on-snovopolagaûsem document approved by Parliament in 2011 and defines benchmarks internal and foreign policy of Norway in the Arctic until 2030. Among the main priorities of the strategy is the strengthening of cooperation with Russia and the sustainable management of natural resources. In accordance with the development strategy of the far North, the Government has approved a set of documents that define and regulate research policy in the Arctic region: Research strategy for the Northern Areas 2011—2016); Regional policy 2014—2018; Norwegian polar research, Research Policy 2014—2023. These documents have programmatic, ideological function, and are focused on a description of the mechanisms of interaction between the national and regional executive authorities with scientific and academic institutions in Norway, defining research priorities and target indicators.

The aims and objectives of research policy in the Arctic. *Development strategy of the far North (Nordområdene: Visjon og virkemidler)* — science and education are the first of fifteen prior-

ity areas defined in the document. Landmark scientific and educational policy is marked with an ambitious goal of Norway's leading position in research activities in the far north of the remaining fourteen paragraphs to introduce technologies and evidence-based management methods pass Rod line within the objectives of directions. Among the key research objectives in the strategy are highlighted: 1) development of a system to support research teams in the framework of the activities of the Fram-Center in the city of Tromsø, with the aim of achieving them leading international position in the field of environment and climate studies of the far North; 2) construction of the research fleet Norway; 3) not less than 50% increase in funding research projects academics of Northern Norway through the "Barents 2020", that in 2015 was transformed into the Arctic programme 2030; 4) consolidation resources institutions of science and education of the Arctic focus, coordination and cooperation between them in order to improve the quality of knowledge and optimizing the use of available resources; 5) support for higher education and science as key priorities of the Norwegian development at Svalbard (Svalbard).

Research strategy for the Northern Areas 2011—2016 specifies the priority research areas in Northern Norway. The documents identified three main objectives of research policy: ensuring high-quality research, the development of international research cooperation and the strengthening of the role of science in the industrial development in the North. Identified priority research areas: study of the Arctic in the international geopolitical and legal contexts; environmental issues and biological resources; energy, oil and mineral resources, including the establishment of environmental management system, the development and introduction of green technologies for the extraction of mineral resources; social development in the Arctic and far North (in particular, infrastructure, labour resources innovative development industry; the study and use of the unique research capabilities of the region (climate, geography, and culture). The most important instrument in the framework of the strategy designated international scientific cooperation, both through the development of network projects and academic mobility, exchange of knowledge, the establishment of common databases.

Regional policy for the period 2014—2018 is aimed at laying the foundations of scientific interaction between the regions of Norway and central Governments and research organizations document is devoted to the description of mechanisms to coordinate research and innovation activities of the regional scientific and educational institutions, with the Norwegian research So-wetom, as well as the description of the tools of financial support of scientific and innovation activities in the area of improving the quality of research and the growth of international interaction. Among the instruments of financial support from a special place is given to the formation of mixed

funds through the development of interaction between Innovation Norway ", "SIVA», regional research funds, regional and local authorities.

Norwegian polar research, Research Policy 2014—2023 defines the list of research priorities in the Arctic and Antarctic and aims to develop sustainable, science-based resource management mechanisms and the environment, as well as the development of mechanisms for management of industrial and social development of the regions of the far north of Norway, in order to make the priority topics of research activities in the Arctic program defines two main groups of research: sectoral and cross-cutting, in which formulated 7 thematic subgroups comprising 38 key research themes.

The main objective of research policy in the North of Norway — knowledge needed for economic and social development of the northern territories, to provide leadership in international scientific exploration of the Arctic region. Priority areas of scientific activity is the environment, sustainable use of resources, living conditions. The measures envisaged by the above-mentioned legal acts are implemented sectoral ministries and subordinate them to scientific centres, Research Council of Norway, Innovation Norway (Innovasjon Norge), the Industrial Development Corporation of Norway State "SIVA". The most important role in implementing research on priority directions is given to higher education institutions of Nordland, Troms and Finnmark, and research centres in Northern Norway: Fram-Center (Research Centre for the far North on climate and the environment), Norwegian Polar Institute. A central place to coordinate research activities in Norway in the Arctic defined Fram-Center located in the city of Tromsø Troms province.

One of the most important tasks of the Arctic Norwegian policy is positioning the country as a leading platform for discussing the problems of the region and an international research policy. To consolidate efforts of all stakeholders, it is necessary to define Arctic research policy and its subjects. In 2007, Tromsø became the host for the annual International Forum "Arctic frontiers", which discusses a broad range of issues related to the polar regions, including research and evaluation of their results in Tromsø are also the Secretariat of the Arctic Council The Secretariat Of The Arctic Council. In 2015, it was decided to move to Tromsø from Copenhagen by the Secretariat of the Arctic Council on indigenous peoples (IPS)

Thus, since the mid-2000's. Norway has been pursuing a consistent policy in the field of Arctic research aimed at ensuring the country's superiority in this field. The priority areas of research are formulated in line with the challenges facing the Kingdom in the region. A broad regulatory framework, defined financial instruments supporting research. Norwegian research in the Arctic is not only aimed at addressing fundamental scientific problems, but are closely linked with the development of the northern regions of the country.

Scientific and educational potential of the Northern Territories of Norway

Nordland, Troms, Finnmark and Svalbard (Svalbard) have considerable scientific-educational and research capacity thanks to a well-developed system of higher scientific and educational institutions (universities, University colleges), and research centers. It should be noted that the system of higher education in Norway is very active in the field of research, providing about a third of the country's R&D ¹⁹. The innovation potential of North Norway is actively developed using grant support "Innovation Norway. On the sum of received grants from the 20 provinces of Norway: Nordland is at 2nd place, Finnmark on the 5th, Troms on the 8th, Svalbard in 20th. They give 10% — 30% of the financing of the new organizations (for less than 3 years).

In regional scientific and educational potential cut Norway in the Arctic region is as follows. From January 1, 2016, in the province of *Nordland* happened consolidation of scientific and educational institutions by combining university colleges Nesna and North Trøndelag with University of Nordland, thereby creating Nord University. *Nesna University College* founded in 1918, was reorganized in 1994. It has approximately 1100 people and runs 110 people (90 teachers.). It is divided into teacher training Institute, the Institute for the training of nurses, Institute of information and computer technologies. The College is mainly pedagogical orientation.

Nord University (formerly University of Nordland) was created in 2016, on the basis of University of Nordland, which from January 1 was composed of university colleges of Nesna and Northern Trendelag. Bodø University College, from which arose the University of Nordland, existed from 1994 yr. is located in Bodø, Nordland, the provincial capital, and has offices in eight other cities. It taught the order of 7000 students, employs about 700 people (teachers — 350). Divided into business school faculty training, Department of biological sciences and aquaculture, Faculty of social sciences. There are more than 30 research groups — in practically all areas of training. Within the framework of a PhD at the University there were the following defenses of dissertations: 2012 — 14, 2013 — 19, 2014 — 20. The University has a wide variety of educational programs with an emphasis on the social sciences, business administration, and management of marine resources, such as: Epigenetics in aquaculture, mining in the Arctic. Nordland has approximately 9000 students (including foreigners) and employs approximately 900 employees, including about 540 teachers.

Narvik University College (Narvik University College) founded in January 1, 1994 has 1800 students, 20% of them foreign students. There are about 160 Personnel (approximately 100 teachers.) divided by the Faculty and Faculty of health. In January 1, 2016 became part of the Uni-

¹⁹ The higher education sector is an important R&D performer in the Nordic countries. URL: <http://www.nifu.no/en/news/universitets-og-hogskolesektor-en-viktig-fou-aktor-i-norden/> (Accessed: 11 March 2016)

versity of Tromsø. Narvik University College has a strong applied focus in industry, construction (including in cold climates) and various modern technologies, including space.

In the province *Troms* functions *Harstad University College*. The College was established in 1983, at the moment it has approximately 1 300 people and runs 120 persons (approximately 100 teachers). Consists of the Office of business management and Social Sciences (group management and organization, group service), Department of health and social work (social education group, a group of nursing, child protection unit, the Group further education) College has social and entrepreneurial orientation. Since January 1 2016, it became a part of the University of Tromsø.

University of Tromsø — Arctic University of Norway was established in 1968 and opened in 1972, in 2009 it was merged with Tromsø University College, with 2013 — with University College Finnmark, 2016 — with the University College Harstad and Narvik. Located in the provincial capital city of Tromsø, Troms County. The University has approximately 12000 people and operates approximately 2 900 people (of whom teachers — 1 200 persons). 20% of teachers and 10% of students are foreign nationals working and studying in the University. Consists of the Faculty of public health, the Faculty of science and technology, Faculty of Humanities and social sciences and education, Faculty of biological sciences, fisheries and economy, Faculty of Arts, Faculty of law. Finnmark University College is considered a separate faculty. Four campuses are located in Tromsø, Alta, Hammerfest, and Kirkenes. There are 12 research centres associated with biology, marine resources, medicine, and culture. The University is also responsible the Barents Institute, specializing in the study of border territories of the Barents Euro-Arctic region, cross-border relations and the impact of economic activity on the Northern community. Budget of the University for the 20% consists of grants to research, almost half of which is financed by the Research Council. Within the framework of a PhD programme the University was the following defenses of dissertations: 2012 — 110; 2013 — 123, 2014 — 101. Educational programmes cover both theoretical and practical areas in almost all possible spheres, ranging from international relations to applied mathematics. For example, here is a short list of Arctic research subjects undertaken by university teams: regulation of Arctic fish nutrition, monitoring and assessment of natural processes in the Arctic, the study of gas hydrates in the Arctic (past and present), climate change and disease of deer, living conditions in the Arctic. In the universities of Troms studies about 13 000 students, including foreigners, and in higher education about 3000 people are employed, of whom approximately 2 200 teachers. University of Tromsø is the main component of the science and technology cluster, which also includes institutes leading applied research and commercialization (NORUT NOFIMA, etc.)

The Fram Centre is coordinating the largest research centre in Norway in the Arctic. Its full name — High North Research Center for Climate and Environment, Center for research on climate and the environment in the extreme North. It brings together and coordinates the activities of about 20 organizations and institutions engaged in Arctic research. In particular, CICERO — Center for international climate and environmental research, Institute of marine research, the national coastal administration, Norwegian Polar Institute, the Meteorological Institute, Norway map service, geological survey, Akvaplan Niva and others. The main objective of the Center is to provide conditions for multidisciplinary research activities aimed at obtaining qualitatively new knowledge enable you to develop effective methods of resource management and environmental protection in the North. In the sphere of his interests in climate study, ice, the sea, the impact of industry and pollution on ecosystems. Centre under the authority of the Committee, consisting of representatives of ministries, seven from which leadership is Ministry of nature and environment protection.

Norwegian Polar Institute is one of the leading research institutions in Norway in the Arctic region focused on organizing and conducting research on environmental monitoring in the Arctic and Antarctic Institute is part of the Fram-TSentra and is subordinate to the Ministry of nature and environment protection. NPI actively participates in the development of research policy in the Arctic, as well as in the management of the northern territories of Norway, coordinates research activities of other organizations in the Norwegian sector of the Arctic. The Institute has about 160 employees²⁰, has its own research vessel (2017 planned commissioning of another), the research station and Observatory on the archipelago of Svalbard. The Institute operates the Centre for the study of ice, climate and ecosystems, created in 2009.

In the province of *Finnmark* there is *Finnmark University College*. From 2013 is a part of the University of Tromsø as a separate faculty, has institutions of social work, physical culture and sport, tourism and the study of the North. *Sami University College* established in 1989 is located in Kautokeino. Has about 150 students, 52 staff members. Components: outlet of crafts and Sciences, Department of languages, Department of social sciences. Here studied English and Sami languages, Sami culture and history, traditional way of life of the Sami people. Programmes at PhD level are closely associated with universities in Norway and other countries and include linguistics, the study of culture, literature and social sciences.

Svalbard University Centre — the northernmost research and educational center in Norway in the world, is located in p. Longyear archipelago *Svalbard*. Founded in 1993, and is the fruit of

²⁰ Norwegian Polar Institute's organization. URL: <http://www.npolar.no/en/about-us/organization/> (Accessed: 11 March 2016)

the cooperation of the universities of Oslo, Bergen, Tromsø and the Norwegian University of science and engineering. There there are about 450 students annually, of whom not less than 50% of foreign students has been working for about 100 employees, including faculty, 65 people. University Centre has an ambitious goal to become a leading international Center for learning and teaching in the Arctic by 2020. The Center provides courses level of Bachelor, master and PhD in the following areas: the Arctic biology, Arctic geology, Arctic Geophysics, Arctic technology. He also serves as a logistic base for organizing and conducting field research in the archipelago. Total number of taught subjects — more than 60. Pronounced applied focus, the Center is focused on training of specialists in various scientific and technological aspects of the exploration and exploitation of the Arctic, including in the areas of sustainable development and conservation of the environment. The Centre implemented an extensive programme of research on topics such as: the study of Cretaceous basins of the far North, security, industrial development and transport routes in the Arctic, creating a photographic data of invertebrates.

Scientific and educational international cooperation In the Arctic region

Among the fifteen priorities of strategy of development of the far North are indicated: strengthening and developing cooperation with the Arctic States and other partners with common interests in the Arctic (No. 6); strengthening of cooperation in the Arctic Council and regional venues such as the Barents and Northern dimension cooperation (No. 7), as well as the development of infrastructure in the North, in cooperation with neighbouring countries to support economic development (No. 13). The Norwegian Foreign Ministry to coordinate the implementation of the Arctic policy, including issues relating to Svalbard and international cooperation, is entrusted to the extreme north, Arctic issues and resources (Seksjon for nordområdene, polarsaker og ressurser)²¹. In the functional section is also responsible for management of marine resources and energy in the Arctic in the context of the security policy and foreign policy is in section Office of the Department of security and the far North (Avdeling for sikkerhetspolitikk og nordområdene). The Ministry directly coordinates the running in 2015, 2011. The program «Arctic» 2030 (Arktis 2030)²², designed to support projects with a view to implementing the priorities of the Norwegian Government in the far North. In 2015, the program is funding projects worth 150 million Norwegian kroner. Arctic programme task force 2030 are, first of all, scientific and educational institutions and

²¹ Section for the High North, Polar Affairs and Marine Resources. URL: https://www.regjeringen.no/en/dep/ud/organisation/departments/security_policy/polar_affairs/id85981/ (Accessed: 11 March 2016)

²² Arktis 2030. URL: <https://www.regjeringen.no/no/aktuelt/arktis-2030/id2356599/> (Accessed: 11 March 2016)

enterprises²³. In addition, projects involving foreign partners are given priority in the selection of applications. "Arctica" 2030 program included previous program "Barents 2020" (Barents 2020), which is also coordinated by the Foreign Ministry of Norway. Extension of the geographical scope of the programme (from the Arctic Barents region) demonstrates the growing value of the Arctic in the foreign policy course of the country.

Norwegian Centre for cooperation in the field of education (for internasjonale senter av lising utdanning, abbr. Siu) is a subordinate Agency of the Ministry of education and science of Norway (Kunnskapsdepartementet)²⁴. The Centre promotes international cooperation and internationalisation of Norwegian education and conducts information and analytical work in this direction. SIU administers a number of programmes aimed at the development of the international educational cooperation in the Arctic region. First of all, this program is High North Programme 2013-2018, the purpose of which is to expand and spread knowledge about far North. The total budget of the programme amounts to 53 million Norwegian kroner. Program supports educational projects between universities of Norway, Russia, Canada, the United States, Japan, China, the Republic of Korea, in particular projects of academic mobility, joint seminars, developing joint courses (including intensive courses, summer schools), educational programmes, joint scientific manuals, etc. Under the coordination of the SIU program of cooperation with Russia 2011-2016 (Cooperation programme with Russia)²⁵, aimed at developing long-term cooperation between Russian and Norwegian universities in Humanities and social sciences, business development, oil and gas industry, the study of oceans and seas, field climate and energy, environmental sciences and the sustainable use of resources, health. The program funds projects of academic mobility, joint seminars, developing joint courses (including intensive courses, summer schools), educational programmes, joint scientific manuals, etc. The Centre coordinates a programme of fellowships for study in the extreme north (Fellowship programme for Studies in the High North)²⁶, which offers scholarships to students from Canada, the United States, Russia, South Korea and the United States to study at universities in North Norway for a period of one to two semesters.

²³ Utlysning av nordområdemidler – Arktis 2030. URL: https://www.regjeringen.no/no/dep/ud/tilskuddsmidler/utlyste_tilskudd/arktis-2030/id2356612/ (Accessed: 11 March 2016)

²⁴ Senter for internasjonalisering av utdanning. URL: <http://siu.no/> (Accessed: 11 March 2016)

²⁵ Cooperation Programme with Russia 2011-2016. URL: <http://siu.no/eng/Programme-information/BRICS-and-Eurasia/Cooperation-Programme-with-Russia-2011-2016> (дата обращения: 11.03.2016)

²⁶ Fellowship programme for Studies in the High North. URL: <http://siu.no/eng/Programme-information/North-America-and-the-High-North/Fellowship-programme-for-Studies-in-the-High-North> (Accessed: 11 March 2016)

*The Norwegian Research Council (abbr. Nees, Norwegian. Norges forskningsråd)*²⁷ is a subordinate Agency of the Ministry of education and science of Norway (Kunn-skapsdepartementet.) NEES plays a major role in the development and implementation of research policy in Norway. Its other functions are to promote Norwegian science, including abroad, advising the Government on policy research, management of funds allocated for research, distribution of grants, internationalization of the Norwegian science. NIS is also platform interaction between scientists and research customers. Two major programmes, aimed at research in the Arctic, are Polar Research program (Polar Research programme, POLARPROG), Russia and the far North/Arctic (Russia and the High North/Arctic, NORRUSS)²⁸. Various aspects of studying the Arctic funded under other programmes of NIS: "space research" (Space Research, ROMFORSKNING), oceans and coastal areas (The Oceans and Coastal Areas, HAVKYST), "Norwegian environmental studies 2015» (Norwegian environmental research towards 2015, MILJO2015)²⁹, "Large-scale oil and gas research program "(Large-scale Programme for Petroleum Research, PETROMAKS2)³⁰, (Large-scale Programme on Climate Research, KLIMAFORSK)³¹. Norwegian Research Council funded projects gives priority to applications from foreign partners.

A special programme of support for the international scientific and educational cooperation, jointly implemented with the NIS and SIU the International program is Partnerships for Excellent Education and Research (INTPART)³². the programme finances long-term cooperation projects between Norwegian scientific and educational institutions and leading academic groups from Brazil, Canada, China, India, Japan, Russia, South Africa and the United States also NEES and SIU jointly implement the program UTFORSK³³, the purpose of which is to support educational cooperation within the framework of existing research projects with Norwegian universities

²⁷ Forskningsrådet si rolle. URL: http://www.forskningsradet.no/no/Visjon_og_mandat/1138785796497 (Accessed: 11 March 2016)

²⁸ Polar Research programme (POLARPROG). URL: http://www.forskningsradet.no/prognett-polarforskning/Home_page/1231229969357. Russia and the High North/Arctic (NORRUSS). URL: <http://www.forskningsradet.no/servlet/Satellite?c=Page&pagename=geopolitikk-nord%2FHovedsidemal&cid=1226994122323&langvariant=en> (Accessed: 11 March 2016)

²⁹ Romforskning. URL: <http://www.forskningsradet.no/servlet/Satellite?c=Page&cid=1228296488592&pagename=romforsk%2FHovedsidemal>. The Oceans and Coastal Areas (HAVKYST). URL: <http://www.forskningsradet.no/servlet/Satellite?c=Page&cid=1226994156364&p=1226994156364&pagename=havkyst%2FHovedsidemal>. Norwegian environmental research towards 2015 (MILJO2015). URL: <http://www.forskningsradet.no/servlet/Satellite?c=Page&cid=1224697848161&p=1224697848161&pagename=miljo2015%2FHovedsidemal> (Accessed: 11 March 2016).

³⁰ Large-scale Programme for Petroleum Research (PETROMAKS2). URL: http://www.forskningsradet.no/prognett-petromaks2/Home_page/1253980921309 (Accessed: 11 March 2016).

³¹ Large-scale Programme on Climate Research (KLIMAFORSK). URL: <http://www.forskningsradet.no/servlet/Satellite> (Accessed: 11 March 2016).

³² International Partnerships for Excellent Education and Research (INTPART). URL: <http://www.forskningsradet.no/prognett-internasjonale-stipend/Homepage/1224066982949> (Accessed: 11 March 2016)

³³ UTFORSK. URL: <http://siu.no/eng/Programme-information/BRICS-and-Eurasia/UTFORSK> (Accessed: 11 March 2016)

BRICS. According to the results of the first competition of the program supported eight projects. The annual budget of the programme UTFORSK makes about 17 million Norwegian kroner.

Norwegian Barents Secretariat (NOK. Barentssekretariatet, abbr. NBS) is Norwegian inter-regional organization owned by the three regions in Northern Norway: Nordland, Troms and Finnmark³⁴. On behalf of the Foreign Ministry, the Norwegian Barents Secretariat finances a bilateral Norwegian-Russian cooperation projects in the Barents region. NBS has funded around 200 Norwegian-Russian projects annually with a total budget of 35 million. NOK and serves as a resource and focal point for these projects. Barents Secretariat coordinates activities relating to the harmonization of national policies with regional priorities within the framework of multilateral cooperation in the Barents. NBS also serves as a Resource Center for Councils, committees and working groups of the Barents cooperation system. The goal of the program of financing of projects is the establishment of reliable links for NBS between Norwegians and Russians living in the North. In addition to the main programme, there are a few routines that aim to support the priority areas: BarentsKult (support for large cross-border cultural and art projects), "the Barents Regional youth program (funding for multilateral youth projects in the Barents region) projects," "Sport Health Foundation", "Barents-journalism without borders".

Norway builds cooperation on Arctic research, both at the multilateral and bilateral levels. The Kingdom is a member and actively participates in the activities of specialized international organizations. Norway is one of the founding countries of *the Arctic Council*³⁵. The Council is a successful example of international scientific cooperation: international working groups and task forces involved in preparation of assessment and case studies and reports, in close collaboration with Through States and international and other organizations. Norway considers the Arctic Council as an effective tool of interaction between the States of the region and the promotion of national interests. Strengthening the role and authority of the Arctic Council is one of the tasks of the Norwegian Arctic strategy. Indicator of the strong position of Norway in the Arctic Council is the establishment in 2012, Tromsø of the Permanent Secretariat of the organization.

*The Barents Euro-Arctic Council (BEAC)*³⁶ — Regional Forum, whose goal is to promote the sustainable development of the region, bilateral and multilateral cooperation in the fields of economy, trade, science and technology, the environment, infrastructure, education and cultural exchanges, tourism, as well as projects aimed at improving the situation of indigenous peoples of the North. Development of cooperation in the Barents region is one of the tasks of the Norwegian

³⁴ The Norwegian Barents Secretariat. URL: <https://www.barents.no/?MId1=2428> (Accessed: 11 March 2016)

³⁵ The Arctic Council. URL: <http://www.arctic-council.org/index.php/en/> (Accessed: 11 March 2016)

³⁶ Barents Euro-Arctic Council. URL: <http://www.beac.st/en> (Accessed: 11 March 2016)

Arctic strategy. Reaffirmation of the strong position of Norway in BEAC is the fact the headquarters of the International Barents Secretariat is located on its territory (Kirkenes). Development of cooperation in the field of education and science is one of the priorities of the BEAC. In the Declaration of the Summit of Heads of Government of the countries members of the BEAC 3—4 June 2013 (Kirkenes 2.0 Declaration) expressed full support for the further strengthening of cooperation in the field of education, research and innovation»³⁷. Norway participates actively in the work of the Joint Working Group on education and science of the Barents region, operating at both the national level (Norway, Finland, Sweden, Russia) and regional level (13 regions BEAR). The Working Group is an important mechanism for the development of scientific and educational cooperation in the Barents region and brings together 14 universities in the northern territories of Norway, Finland, Sweden and Russia. This is a serious tool for increasing scientific and educational cooperation, the impact of universities on decision-making at federal and regional level and the development of policy in the Barents region in the field of education and science. From 2011 to 2013 the Working Group was jointly led by Northern (Arctic) Federal University and the Arctic University of Norway (Tromsø).

Norway is one of the founding countries of *the Nordic Council of Ministers* (Nordic Council of Ministers, an abbr. NCM) is an intergovernmental forum for coordination and cooperation between the Nordic countries (Norway, Sweden, Denmark, Finland, Iceland). Norway had participated actively in the work of the Forum, including Nordforsk whose purpose is to finance and the development of scientific cooperation between the Nordic countries³⁸. By Norway coordination of participation in the program Nordforsk carries out the Research Council of Norway., 2012 with NCM it implements a number of programmes aimed at strengthening scientific cooperation on Arctic issues. The Arctic cooperation programme 2015-2017 (The Nordic Council of Ministers' Arctic Co-operation > Programme 2015-2017)³⁹ aims to support sustainable development in the region in four priority areas: peoples; sustainable economic development; environment, nature and climate; education and improving competencies. The annual budget of the programme amounts to approximately 10 million Dkr. In 2014-2015 hosted the first contest Nordforsk on financing for

³⁷ Deklaratsiya po itogam vstrechi glav pravitelstv stran-chlenov SBER. Kirkenes, 3—4 iunya 2013 goda. URL: <http://government.ru/media/files/41d46b75c7931f08b9b7.pdf> (Accessed: 11 March 2016)

³⁸ Nordforsk. URL: <http://www.nordforsk.org/en> (Accessed: 11 March 2016)

³⁹ The Nordic Council of Ministers' Arctic Co-operation Programme 2015-2017. URL: <http://www.norden.org/en/nordic-council-of-ministers/ministers-for-co-operation-mr-sam/the-arctic/the-nordic-council-of-ministers-arctic-co-operation-programme-2015-2017> (Accessed: 11 March 2016)

«Northerncenters of Arctic Research" (Nordic Centres of Excellence in Arctic research)⁴⁰. The aim of the competition was to strengthen the Nordic research through the development of long-term cooperation. The budget of the contest was about 85 million Norwegian kroner. Nordforsk financing a programme of cooperation with Russia, the Nordic countries (Nordic-Russian Co-operation programme)⁴¹, aimed at supporting the development of academic mobility, networking, developing joint courses and others forms of cooperation between the universities of Russia and Northern countries. ProGram is administered by the Norwegian Centre for cooperation in the field of education (SIU). Within the framework of Nordic co-operation is to support the educational cooperation (projects, academic mobility) through the Nordplus⁴². Project applications application process administered by the Norwegian Centre for cooperation in the field of education (SIU).

Not being a member of *the European Union*, through agreements Norway is party to all major research and educational programs of the EU, including relevant to Arctic region. Norwegian Research Council coordinates the participation of Norwegian organizations in the programme "Horizon 2020", including competition "European cooperation in the field of polar research (European polar researchcooperation)⁴³. Norwegian Centre for cooperation in the field of education (SIU) is the national Norwegian Centre European programme Erasmus + supporting academic mobility in the field of education, youth and Sport also Norway is party to the mobility of researchers programme EURAXESS⁴⁴. Arctic Norwegian University (a division of the Barents Institute, city of Kirkenes) is a member of the northern dimension Institute (ISI), which represents an open community network for universities and research institutions, bringing together experts in the priority sectors of the northern dimension policy (energy, health, tourism, culture and higher education).

15 Norwegian universities and scientific organizations are members of the University of the Arctic (University of the Arctic) is the largest international network of educational and research institutions in the far North (more than 170 organizations from the Arctic and the rest of the world and about 1 million students), the leading research activities in the North. The main objective of the Consortium is the production of knowledge and the development of scientific capacity for the sustainable development of the circumpolar region and favourable conditions for residents of the North. Norway supports the University of the Arctic through the establishment of a Fund for UArctic

⁴⁰ Funding available for Nordic Centres of Excellence in Arctic research. URL: <http://www.nordforsk.org/en/news/funding-available-for-nordic-centres-of-excellence-in-arctic-research> (Accessed: 11 March 2016)

⁴¹ Nordic-Russian Cooperation. URL: <http://siu.no/eng/Programme-information/BRICS-and-Eurasia/Nordic-Russian-cooperation> (Accessed: 11 March 2016)

⁴² Nordplus. URL: <http://www.nordplusonline.org/> (Accessed: 11 March 2016)

⁴³ European polar research cooperation. URL: <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/535-bg-15-2014.html> (Accessed: 11 March 2016)

⁴⁴ EURAXESS - Researchers in Motion. URL: <http://ec.europa.eu/euraxess/> (Accessed: 11 March 2016)

Norway, which administers the University of Tromsø. The Fund is financed through support projects thematic networks University of Arctic, Circumpolar mobility Fund North-to-North, long-term projects such as Go North, Global Access, North-to-North plus and others. Is active engagement of scientists within the framework of the activities of the thematic networks of expertise in different areas of science and technologyologij (total 33, including ecology, energy geopolitics, Northern Territories management, commercialization of scientific developments in the North, etc.). Consortium participants, including Russian and Norwegian universities, provide analytical and expert support to the activities of the working groups. In particular, studies are being conducted with a view to achieving the objectives of the Arctic monitoring and assessment programme. Introduced to this project UCCARP International Arctic Science Committee on identifying priority areas of Arctic research and identify the needs of the inhabitants of the northern regions of the Arctic University administers the international academic mobility program North-to-North (North2North)⁴⁵, which is funded by including the Norwegian Ministry of Foreign Affairs. Under the program, students and academics — consortium members receive financial support for training, internships, exchanges, participation in summer schools, etc. forms of mobility. In addition to visiting the mobility of Norwegian students in universities of Arctic countries, the program offers scholarships to Russian students to study at Norwegian universities and University Centre of Svalbard.

Analyzed information suggests that, to date, Norway considers the international scientific-educational cooperation as one of the key instruments for achieving sustainable development in the Arctic and addressing national challenges in the region. Participation in a variety of formats for international cooperation, the development of research infrastructure, financial support to national and international research programmes, academic mobility, educational development allow you to build effective communication with almost all the countries active in the Arctic region.

Conclusion

Thus, since the mid-2000s Norway has been pursuing a consistent policy in the field of Arctic research aimed at ensuring the country's superiority in this field. As a result of the priority areas of research are formulated in line with the challenges facing the Kingdom in the region. A broad regulatory framework, defined financial instruments supporting research. Norwegian research in the Arctic is not only aimed at addressing fundamental scientific problems, but also closely linked with the development of the northern regions of the country.

Norway innovation policy is implemented through the extensive network of technology parks, business incubators, innovation centers when interacting with business, academic institu-

⁴⁵ About north2north. URL: <http://education.uarctic.org/mobility/about-north2north/> (Accessed: 11 March 2016)

tions and non-profit organizations. It aims at stimulating research and innovation activity, commercialization of research results, development of international scientific and technological cooperation in such priority areas as the oil and gas industry, information and communications technology, bio-and nanotechnologies, shipbuilding and ship arrangements, environment, renewable energy and resource conservation, medical technology. However, expenses for research and development in the volume of GDP is the lowest among the Nordic countries, and innovative activity the country demonstrates low rates among European countries.

International scientific-educational cooperation is considered the Norwegian Government as one of the key instruments for achieving sustainable development in the Arctic and addressing national challenges in the region. Participation in a variety of formats for international cooperation, the development of research infrastructure, financial support to national and international research programmes, academic mobility, educational development allow you to build effective communication with almost all the countries active in the Arctic region.

Given the strategic importance of the Arctic in terms of security, economic development, the preservation of biodiversity and unique cultures of the peoples of the North, one of the key priorities of the Russian Federation is seen as development and implementation of coherent policies in the field of science and education in the region. In this regard, certainly seems necessary accounting 10-year-old Norwegian works in this direction.

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