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Issues of Application of the Customs Procedure of a Free Customs Zone in the Arctic

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Abstract. The current regulation provides for the possibility of creating special (free) zones and equivalent territories (hereinafter — SEZ) in the Arctic (territories of advanced development and the Arctic zone of the Russian Federation). Within the framework of SEZs, the customs procedure of a free customs zone (hereinafter — FCZ) can be applied, which provides opportunities to conduct economic activities with foreign goods without paying customs duties. The purpose of the study is to investigate the peculiarities of applying the customs procedure of a free customs zone in the Arctic. The following research methods were used in the preparation of the article: economic, analytical methods, method of comparison and generalization. This simplification can be demanded by Russian organizations — residents (participants) of the territories of advanced development and the Arctic zone of the Russian Federation. The proposed article is devoted to the consideration of the mechanisms of the above-mentioned simplifications provided for the residents of the "Arctic" SEZ. At the same time, the application of the customs procedure of FCZ in the SEZ territories is an important tool of the state economic policy, designed to ensure the creation of comfortable conditions for taxation of foreign goods. Issues related to the status of goods manufactured in SEZs using foreign goods that are placed under the FCZ customs procedure are largely related to Russia's international obligations underlying the current regulation. In practice, the set of legally established simplifications analyzed in the article creates conditions for more effective activity of SEZ residents.
Keywords: *customs procedure, free customs zone, Arctic, tax regulation, Arctic zone of the Russian Federation, customs control, Russian resident organization*

Introduction

Current regulations provide for the creation of SEZs in the Arctic: territories of advanced development and the Arctic zone of the Russian Federation. Within such SEZs, the customs procedure of the free customs zone (FCZ) may be applied, which provides opportunities to conduct economic activities using foreign goods without paying customs duties.

The Customs Code of the Eurasian Economic Union (hereinafter — EAEU) includes Chapter 27 "Customs procedure of the free customs zone" (formerly — FCZ), which provides for significant

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simplifications for SEZ residents (participants) in the application of the FCZ customs procedure, in comparison with other customs procedures , under which foreign goods can be placed, as well as with the mechanism that was in force for the FCZ customs procedure before the adoption of the EAEU Customs Code and related acts of the EAEU and Russia (hereinafter — simplifications) [1].

In order to implement the provisions of the EAEU Code related to simplifications, a decision of the Council of the Eurasian Economic Commission dated December 20, 2017 No. 88 “On certain issues of applying the free customs zone customs procedure” (hereinafter — the Decision) was prepared) [2].

These acts, in particular, stipulate that in relation to goods placed under the FCZ customs procedure, and (or) goods manufactured (obtained) from goods placed under the FCZ customs procedure, all kinds of operations are allowed on the territory of the SEZ, as well as the possibility of a simplified procedure for completing the FCZ customs procedure and, accordingly, terminating the presence of goods under customs control [3].

With regard to the above-mentioned possibility of a simplified procedure for completing the FCZ customs procedure and terminating the presence of goods under customs control, a special term has been introduced into the current regulation — “other consumption”, which covers such operations as expenditure (consumption) of goods during creation, operation, repair and reconstruction of real estate objects on the SEZ territory, operation and (or) maintenance of equipment, expenditure for scientific purposes, etc. [4]

The possibilities for exporting goods placed under the FCZ customs procedure and (or) goods manufactured (obtained) from goods placed under the FCZ customs procedure from the SEZ territory without completing the FCZ customs procedure have also been expanded [5].

[1] Chapter 27 of the EAEU Customs Code.

[2] Reshenie Soveta Evraziyskoy ekonomicheskoy komissii ot 20 dekabrya 2017 g. № 88 «O nekotorykh voprosakh primeneniya tamozhennoy protsedury svobodnoy tamozhennoy zony» [Decision of the Council of the Eurasian Economic Commission dated December 20, 2017 No. 88 “On some issues of applying the customs procedure of a free customs zone”]. Reshenie Soveta EEK ot 20.12.2017 № 88. Tamozhennye dokumenty [Decision of the EEC Council dated December 20, 2017 No. 88. Customs documents]. URL: alta.ru (accessed 14 August 2023).

[3] Article 129 of the EAEU Customs Code.

[4] O vnesenii proekta federal'nogo zakona «O vnesenii izmeneniy v otdel'nye zakonodatel'nye akty Rossiyskoy Federatsii, reguliruyushchie primenenie tamozhennoy protsedury svobodnoy tamozhennoy zony v Rossiyskoy Federatsii» [On introducing the draft federal law “On amendments to certain legislative acts of the Russian Federation regulating the application of the customs procedure of the free customs zone in the Russian Federation”]. № 1148254-7 Zakonoproekt: Sistema obespecheniya zakonodatel'noy deyatel'nosti [No. 1148254-7 Draft law: System for ensuring legislative activity]. URL: duma.gov.ru (accessed 14 August 2023).

[5] Reshenie Soveta Evraziyskoy ekonomicheskoy komissii ot 25.12.2023 g. № 18 «O vnesenii izmeneniy v Reshenie Soveta Evraziyskoy ekonomicheskoy komissii ot 20.12.2007 g. № 88» [Decision of the Council of the Eurasian Economic Commission dated December 25, 2023 No. 18 “On amendments to the Decision of the Council of the Eurasian Economic Commission dated December 20, 2007 No. 88”]. Reshenie Soveta EEK ot 25.01.2023 № 18 «O vnesenii izmeneniy v Reshenie Soveta Evraziyskoy ekonomicheskoy komissii ot 20 dekabrya 2017 g. N 88». Tamozhennye dokumenty [Decision of the EEC Council dated January 25, 2023 No. 18 “On amendments to the Council Decision Eurasian Economic Commission dated December 20, 2017 N 88”. Customs documents]. URL: alta.ru (accessed 14 August 2023).

This simplification also applies to cases of export of goods from the SEZ to the rest of the Russian territory for own production and technological needs, as well as for processing and manufacturing of goods [6].

This simplification may be in demand by Russian organizations — residents (participants) of the territories of advanced development and the Arctic zone of the Russian Federation.

Literature review

This topic seems to be very relevant, which is confirmed by the fact that more than 20 publications in journals and research papers (R&D) are directly related to it. The analysis of previously published works devoted to the problems of state economic policy in relation to SEZs allows us to identify the following areas of research.

Issues of customs control of transport flow through the Arctic zone [1, Komlichenko S.G., pp. 15–18], where the necessity to integrate the RF subjects of the Arctic zone into the unified transport system and into the economic space of the country is noted.

At the same time, tax and customs issues are considered in a limited number of works, the authors of which are Nikulkina I.V. [2, pp. 143–151; 3, pp. 144–153; 4, pp. 153–160; 5, pp. 90–100; 6, pp. 115–124; 7, pp. 29–36; 8, pp. 152–162; 9, pp. 31–36; 10, pp. 64–68; 11, pp. 42–49], Goncharenko L.I. [2, pp. 143–151], Sukneva S.A. [pp. 144–153], Filimonova L.M. [4, pp. 153–160], Grebnik V.V. [12, pp. 4–10].

Regarding the results of the above-mentioned studies, the following can be noted. Thus, Nikulkina I.V. and Filimonova L.M. [4, pp. 153–160] provide proposals for “an adapted set of tax and customs mechanisms for the implementation of state financial policy in the macroregion for the supporting development zones of the Arctic”. These authors propose to introduce a special tax regulation regime in the form of tax preferences and benefits, customs regulation measures, customs simplifications in order to stimulate investment and business activity in the Arctic zone of Russia. However, within the framework of this article, all the proposals are obvious and of a standard nature, but there is no explanation of the simplifications, which ones we are talking about. Similar proposals are presented in [7–11]. Goncharenko L.I. and Nikulkina I.V. [2] also propose a set of tax and customs mechanisms for the implementation of state financial policy in the Arctic. In addition to the measures mentioned in the article [4], they propose measures for small and medium-sized businesses and research activities in the Arctic. It is also proposed to adapt such a tax instrument as an investment tax credit for use in the Arctic zone of the Russian Federation, but it is unlikely that any special mechanisms for its application can be used in this zone. The article by Nikulkina I.V. [5] proposes a set of tax and customs mechanisms and instruments of influence for supporting development zones in the Arctic and for the

[6] O vnesenii proekta federal'nogo zakona «O vnesenii izmeneniy v otdel'nye zakonodatel'nye akty Rossiyskoy Federatsii, reguliruyushchie primenenie tamozhennoy protsedury svobodnoy tamozhennoy zony v Rossiyskoy Federatsii» [On introducing the draft federal law “On amendments to certain legislative acts of the Russian Federation regulating the application of the customs procedure of the free customs zone in the Russian Federation”]. № 1148254-7 Zakonoproekt: Sistema obespecheniya zakonodatel'noy deyatel'nosti [No. 1148254-7 Draft law: System for ensuring legislative activity]. URL: duma.gov.ru (accessed 14 August 2023).

reference ports of the Northern Sea Route (member organizations implementing infrastructure investment projects and projects for modernization and creation of new industries in the Arctic). These measures are given in Table 1, but it seems that they largely coincide with the traditional tools that are used for the development of special territories.

The works of economists Grebenik V.V. and Nikulkina I.V. [6, 12] offer comparable proposals for tax incentives for the exploration and development of the Arctic zone of the Russian Federation. Thus, it is proposed to use a special tax regime for international activities, as well as a general regime. In order to address environmental issues, these authors propose the introduction of an ecological tax and the creation of an environmental fund of the Arctic. Of scientific interest is the proposal of the above-mentioned authors to establish a new special customs procedure, which would provide for exemption from customs duties and VAT for certain categories of imported goods. However, speaking about the practical aspects of this proposal, it should be noted that it is not based on the current regulation, which makes it possible to use other development tools, including the FCZ customs procedure provided for by the Customs Code of the Eurasian Union. In more detail, the main views on the issue under study by leading scientists in this field are presented in Table 1.

Table 1

Main views on the issue under study by leading scientists in this field [7]

Scientists	Scientific views
Nikulkina I.V., Filimonova L.M. [4]	The article proposes "an adapted set of tax and customs mechanisms for the implementation of state financial policy in the macro-region for the supporting development zones in the Arctic, involving the introduction of a special tax regulation regime in the form of tax preferences and benefits, customs regulation measures, customs simplifications in order to stimulate investment and business activity in Arctic zone of Russia, as well as improving the quality of life of the population in the Arctic" [4].
Goncharenko L.I., Nikulkina I.V. [2]	The article proposes the following measures: "tax and non-tax incentives for: small and medium-sized businesses; organizations carrying out research activities in the Arctic; economically active population working in the Arctic zone of the Russian Federation" [2]. It also recommends "similar measures in the form of tax incentives for a number of taxes and reduced rates of insurance premiums, "Arctic" investment tax credit" [2].
Nikulkina I.V. [5, 6, 7, 8, 9, 10, 11]	The article proposes "a set of tax and customs mechanisms and instruments of influence for the supporting development zones in the Arctic and for the reference ports of the Northern Sea Route" [5, p. 96]. It also proposes "a special procedure for taxation and customs regulation in the development of the Arctic zone of the Russian Federation, aimed at stimulating investment and business activities in the supporting development zones in the Arctic and the reference ports of the Northern Sea Route" [8]. As measures, the author proposes also "a special tax regime (here-

[7] Source: compiled by the authors.

	inafter — STR) for small businesses carrying out commercial activities in the Arctic zone of the Russian Federation; tax holidays and the establishment of a minimum tax under the STR" [10]. In addition to the above, the author recommends "introducing a special customs procedure for the subjects of the Arctic zone of the Russian Federation" [9]. We will consider this in more detail below. The article [6] proposes to "introduce an ecological tax and create an environmental fund of the Arctic" [6]. In articles [7, 11], the author talks about the need to "apply tax benefits for VAT when importing goods into the customs territory of the Russian Federation: goods — raw materials, materials, technological equipment (except for excisable goods) — for their use in export production or import substitution, according to list approved by the Government of the Russian Federation" [7, 11]. In addition, "it is proposed to widely use the stimulating function of customs duties, including in the form of tariff benefits (refund of previously paid duties, exemption from duty payments, reduction of duty rates, establishment of tariff quotas for preferential import (export) of goods)" [7, 11] .
Grebenik V.V., Nikulkina I.V. [12]	In the article, the authors propose to introduce "STR both for the zone as a whole and for participants in foreign economic activity; make changes to the general taxation regime; introduce an ecological tax and create an environmental fund of the Arctic; introduce simplified customs procedures for participants of the innovative project "Arctic"" [12].

It is also necessary to present the two most complete diagrams from the works of these authors, which systematically show their views on the transformation of the process under study (Fig. 1 and 2).

Special tax and customs regulations in the supporting development zones of the Arctic and the reference ports of the Northern Sea Route

The aim – to create favorable conditions for attracting investment to the supporting development zones in the Arctic for the implementation of priority integrated investment projects and to create decent living conditions for the Arctic population

Special tax regime for organizations implementing priority infrastructure investment projects and projects for modernization and creation of new production facilities in the Arctic (for participants in investment projects of the SDZ in the Arctic and the RP NSR).

Special tax regime for organizations implementing priority investment projects for the development of deposits in the supporting development zones in the Arctic.

Tax and non-tax incentives in the form of tax exemptions for a number of taxes and reduced rates of insurance premiums, Arctic investment tax credit for organizations implementing infrastructure investment projects, projects for modernization and creation of new production facilities, as well as projects for the development of fields in the supporting development zones in the Arctic (reference ports of the Northern Sea Route).

A special procedure for customs regulation for organizations implementing priority investment projects in the supporting development zones in the Arctic (reference ports of the Northern Sea Route), implying the application of customs tariff and non-tariff regulation measures (in the form of customs benefits, VAT exemption), as well as the application of a special customs procedure and special customs simplifications.

Fig. 1. Special procedure of taxation and customs regulation in the development of the Arctic zone of the Russian Federation [8, p. 160].

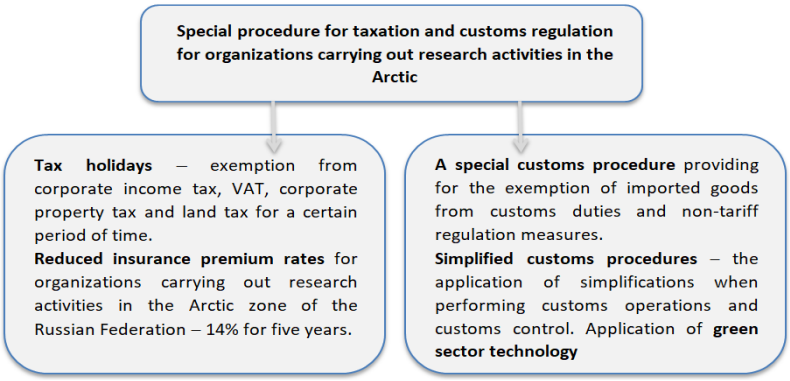

Fig. 2. The main elements of a special procedure for taxation and customs regulation for organizations carrying out research activities in the Arctic zone [2, p. 149].

According to the results of the analysis of previously published works, it can be noted that despite the fact that these works cover a wide range of SEZ development tools, it appears that one of the undeveloped areas is a set of issues regarding the application of the FCZ customs procedure in the Arctic.

The importance of understanding the specifics of the application of the FCZ customs procedure in the Arctic is related, among other things, to the fact that, as noted above, the current regulation offers a large number of tools aimed at providing economic entities — residents and participants of SEZs — with a wide range of simplifications that can be used within the framework of the FCZ customs procedure. However, as the analysis of the practice of application shows, these simplifications, being potentially in demand, are currently not used sufficiently, which may be due, as it seems to the authors of the proposed article, to an insufficient understanding of the mechanism of the FCZ customs procedure.

Taking into account the above, the aim of the study is the scientific and practical development of the mechanism for the operation of the FCZ customs procedures in the Arctic.

The research methodology:

- economic methods — for determining the status of goods placed under the FCZ customs procedure;
- analytical method — for studying special territories — SEZs, where goods can be placed under the FCZ customs procedure;
- generalization method — for systematization of scientific knowledge on the study of the essence and main advantages of the FCZ customs procedure;
- comparison method — for studying additional simplifications that SEZ residents can use.

Results and discussions

FCZ customs procedure — essence and main advantages

In customs relations, goods transported across the customs border of the Eurasian Economic Union (hereinafter — the EAEU, the Union) are usually placed under one of the legally established customs procedures. The exception is cases when special simplifications may be provid-

ed for certain categories of goods, such as, for example, the specific procedure and conditions for transporting goods for personal use across the customs border of the EAEU [8].

The choice of customs procedure is carried out by the participant of foreign economic activity (FEA) independently. To a large extent, it is the customs procedure under which the goods are placed that determines the set of rights and obligations of FEA participant in relation to the goods with which he works.

The Customs Code of the EAEU defines the FCZ customs procedure as a customs procedure applied to foreign goods and goods of the Union, according to which such goods are placed and used within the territory of a special (free) economic zone (SEZ) or its part without payment customs duties, taxes (hereinafter — customs payments), special, anti-dumping, countervailing duties (hereinafter — special duties) subject to the conditions for placing goods under this customs procedure and their use in accordance with such a customs procedure. The FCZ customs procedure includes goods intended for placement and (or) use by residents (participants, subjects — SEZ residents) of the SEZ on the territory of the SEZ for the purpose of carrying out business and other activities in accordance with the agreement on carrying out (conducting) activities in the territory of the SEZ (agreement on the conditions of activity in the SEZ, investment declaration, entrepreneurial program), unless otherwise established by the legislation of a member state of the Union in relation to goods placed under the FCZ customs procedure for placement and (or) use in the territories of individual SEZs, created on the territory of such a state [9].

With regard to the above definition, we can highlight the following circumstances characterizing the FCZ customs procedure, which seem to be significant.

1. In general, the application of the FCZ customs procedure is possible in relation to goods that have both the status of “Union goods” and the status of “foreign goods” in the customs sphere;

2. The possibility of placing goods under the FCZ customs procedure within a special territory — a “special (free) economic zone”, or a territory equivalent to it (SEZ), and in general — by special persons who are SEZ residents, within the framework of the purposes that are designated in agreements concluded with them on conducting activities in the SEZ;

3. The absence of necessity to pay customs payments and special duties when placing goods located on the SEZ territory under the FCZ customs procedure;

4. The need to comply with the legally established conditions for placing goods under the FCZ customs procedure and their use in accordance with the analyzed customs procedure.

In order to demonstrate the advantages — simplifications provided to SEZ residents as part of their application of the FCZ customs procedure, we will compare the FCZ customs procedure with other customs procedures most often used for foreign goods, namely the customs procedure

[8] Chapter 37 of the EAEU Customs Code.
[9] Clauses 1 and 2 of Article 201 of the EAEU Customs Code.

of release for domestic consumption and the customs procedure of temporary import (admission) (Table 2).

Table 2

Comparative characteristics of customs procedures

Customs procedure	Necessity to pay customs duties based on the taxation conditions established for the customs procedure	Necessity to complete the customs procedure	Possibility to perform operations with goods placed under the customs procedure
Release for domestic consumption	Customs duties are paid in full amount	No	Any operations
Temporary import (admission)	Customs duties are paid monthly at the rate of 3% of the total amount	The customs procedure must be completed. Maximum validity period — 2 years	Any operations other than transfer of goods
FCZ	Customs duties are not paid	The customs procedure must be completed only if the goods are exported from the SEZ. In the absence of export, goods can remain under the FCZ customs procedure for an unlimited period of time	Any operations, in some SEZs transfer of goods is possible

Based on the data in the table above, we will consider in detail the most significant of the above-mentioned circumstances in relation to economic activity in the Arctic zone of the Russian Federation.

Status of goods placed under the FCZ customs procedure

In customs relations, any movable property, including currency of the Union member states, securities and (or) currency values, traveller's cheques, electric energy, as well as other transportable things equated to immovable property, are considered as goods [10].

At the same time, goods have such a characteristic as "status" in the customs sphere. In terms of status, all goods must be either "Union goods" or "foreign goods".

Union goods are the following goods located in the customs territory of the Union:

- fully produced (extracted, obtained, grown) in the customs territory of the Union;
- acquired the status of goods of the Union, or recognized as goods of the Union in accordance with the EAEU Code, or before its entry into force;
- produced (manufactured) in one or several EAEU member states from the goods specified above;
- exported from the customs territory of the Union and retaining the status of Union goods in accordance with the Customs Code of the EAEU.

[10] Subclause 45 of clause 1 of Article 2 of the EAEU Customs Code.

Examples of Union goods, in addition to goods produced on the territory of the Union member states, are goods that were imported from abroad, that is, the country of origin of such goods is a country outside the Union, and are placed under the customs procedure of release for domestic consumption without providing benefits that stipulate restrictions on use in economic turnover [13, Andreeva M.Yu., Barinov A.Ya., Borodavkina N.Yu., et al., p. 251].

The status of "foreign goods" is given to goods that are not Union goods, including those that have lost the status of Union goods in accordance with the Customs Code of the EAEU, as well as goods that have acquired the status of foreign goods (recognized as foreign goods) in accordance with the Customs Code of the EAEU [11].

Taking into account the fact that, in general, both Union goods and foreign goods can be placed under the FCZ customs procedure, both categories can be used (involved) in carrying out operations permitted in relation to goods placed under the FCZ customs procedure.

Such an approach, as it seems, is aimed at and makes it possible to create more favorable conditions for economic activity under the FCZ customs procedure when used in SEZs created in the Arctic zone of the Russian Federation.

It seems appropriate to pay special attention to the status of goods manufactured (obtained) from goods placed under the FCZ customs procedure.

With regard to the status of such goods, special rules have been established, according to which goods manufactured (obtained) from foreign goods placed under the FCZ customs procedure acquire the status of foreign goods [12].

The status of Union goods is acquired only by goods manufactured (obtained) from Union goods placed under the FCZ customs procedure, as well as goods manufactured (obtained) from goods of the Union placed under the FCZ customs procedure, and goods of the Union not placed under the FCZ customs procedure [13].

The above norms of the EAEU Code are based on the provisions of paragraph 1124 of the Report of the Working Group on the Accession of the Russian Federation to the World Trade Organization [14], which provides the following.

Goods imported into the SEZ in the Russian Federation in accordance with the provisions that establish exemption from customs duties will be subject to customs duties and customs formalities when imported into the rest of the customs territory of the Union unchanged, or after processing in the SEZ, without exception. The Russian Federation will not recognize such goods as Union goods if they were not subject to customs duties and customs formalities at the time of their release for free circulation in the rest of the customs territory of the Union, and will take

[11] Subclause 12 of clause 1 of Article 2 of the EAEU Customs Code.
[12] Clause 9 of Article 201 of the EAEU Customs Code.
[13] Clause 8 of Article 201 of the EAEU Customs Code.
[14] Report of the Working Group on the accession of the Russian Federation to the World Trade Organization (accepted November 16, 2011 — November 17,.2011). Consultant Plus. Section "International legal acts". The document was not officially published (information provided by the Consultant Plus group of companies).

measures to ensure that any agreements or Union decisions related to the SEZ were subject to changes in order to comply with the requirements of the World Trade Organization (hereinafter — WTO) [15].

Thus, the norms of Union law and Russia's obligations in the WTO stipulate that goods, that is, finished products manufactured (obtained) in the SEZ territory using foreign goods placed under the FCZ customs procedure, must acquire the status of foreign goods.

According to subparagraph 1 of paragraph 6 of Article 207 of the Customs Code of the EAEU, for the export of such goods from the SEZ territory to the rest of the customs territory of the Union, the effect of the FCZ customs procedure is completed by placement under the customs procedures used for foreign goods (subparagraphs 1, 4, 5, 7, 10, 14–16 of paragraph 2 of Article 127 of the Customs Code of the EAEU).

As a rule, in this case we are talking about the customs procedure for release for domestic consumption, which provides for the taxation of goods with customs duties, as shown in Table 1 [14, Artemyev A.A., p. 66–73].

At the same time, the current regulation makes it possible to calculate and pay customs duties in relation to finished products imported from the SEZ to the rest of the customs territory of the Union, based on the identification of the "foreign component" placed under the FCZ customs procedure.

Thus, if such identification is available, customs payments are calculated in relation to foreign goods placed under the FCZ customs procedure and used for the manufacture of goods made (obtained) from foreign goods placed under the FCZ customs procedure (finished products). If, in relation to finished products, there is no identification of foreign goods placed under the FCZ customs procedure, customs duties are calculated and paid in respect of goods manufactured (received) from foreign goods placed under the FCZ customs procedure (finished products) [16].

Thus, the taxation mechanism provided for by the current regulation, based on the identification of the "foreign component" in finished products produced in the SEZ, can be used to formulate taxation with customs duties, ensuring optimal conditions for activity in the SEZ territory. The considered mechanism, according to the authors, is part of the system of simplifications provided for SEZ residents, whose activities are focused on the supply of finished products produced in the SEZ to the rest of the customs territory of the Union.

In addition, an important aspect of the FCZ customs procedure and the status of goods in relation to the SEZ in the Arctic zone of the Russian Federation is the following.

As the results of the analysis show, in most cases, SEZ residents in the Arctic zone of the Russian Federation focus their activities on the extraction of minerals and their processing. As part

[15] Report of the Working Group on the accession of the Russian Federation to the World Trade Organization (accepted November 16, 2011 — November 17, 2011). Consultant Plus. Section "International legal acts". The document was not officially published (information provided by the Consultant Plus group of companies).
[16] Subclauses 1 and 2 of clause 2 of Article 209 of the Customs Code of the EAEU.

of such activities, as a rule, there is the use of foreign goods placed under the FCZ customs procedure, which are equipment.

In this case, when exporting finished products manufactured (obtained) in the SEZ territory to the rest of the customs territory of the Union, such goods should be considered as Union goods; identification of the "foreign component" in them is not required.

The considered mechanism seems to be an important tool allowing to conduct production activities in SEZs using foreign goods (equipment), while obtaining goods (for example, minerals) that are Union goods and, accordingly, imported into the rest of the customs territory of the Union without taxation by customs duties.

Special territories in which goods can be placed under the FCZ customs procedure

In the sphere of customs legal relations, the Agreement on free (special, exclusive) economic zones on the customs territory of the Union and the FCZ customs procedure dated June 18, 2010 (hereinafter —Agreement) established that a free (special, exclusive) economic zone (formerly in the article — SEZ) is a part of the territory of a member state of the Union within the limits established by the legislation of a member state of the Union, in which a special (special legal) regime for carrying out business and other activities is in effect, and the FCZ customs procedure can also be applied [17].

A SEZ resident (participant) is a legal entity or individual entrepreneur registered on the territory of a member state of the Union in the manner established by the legislation of that state and included in the register of SEZ residents (subparagraph 4 of paragraph 1 of Article 1 of the SEZ Agreement) [18].

In Russia, as a member state of the Union, SEZs, based on the peculiarities of their legislative regulation, can be conditionally divided into several types, namely: "classical" SEZs; SEZs of "territorial" type, such as: "Kaliningrad", "Magadan" and "Crimean"; SEZ of the "Far East-Arctic" type, to which the authors include the free port of Vladivostok, priority development areas and the "Arctic" SEZ [15, Sidorova E.Yu., Artemyev A.A., p. 1438].

With regard to the activities in the Arctic zone of Russia, the placement of goods under the FCZ customs procedure can be carried out in the SEZ of the "Far East-Arctic type", operating in accordance with federal laws of July 13, 2020 No. 193-FZ "On state support for business activities in the Arctic zone of the Russian Federation", dated December 29, 2014 No. 473-FZ "On territories of advanced development of the Russian Federation" and dated July 13, 2015 No. 212-FZ "On the free port of Vladivostok" [19].

[17] Subclause 1 of Clause 1 of Article 1 of the Agreement. Consultant Plus. Section "Legislation".
[18] Subclause 4 of Clause 1 of Article 1 of the Agreement. Consultant Plus. Section "Legislation".
[19] Federal'nyy zakon «O gosudarstvennoy podderzhke predprinimatel'skoy deyatel'nosti v Arkticheskoy zone Rossiyskoy Federatsii» ot 13.07.2020 N 193-FZ [Federal Law "On State Support of Entrepreneurial Activities in the Arctic Zone of the Russian Federation" dated July 13, 2020 No. 193-FZ]. Federal'nyy zakon «O gosudarstvennoy podderzhke predprinimatel'skoy deyatel'nosti v Arkticheskoy zone Rossiyskoy Federatsii» ot 13.07.2020 N 193-FZ (poslednyaya redaktsiya) [Federal Law "On State Support of Entrepreneurial Activities in the Arctic Zone of the Russian

The analysis shows that the creation of such SEZs is part of the global trend, as many countries are making attempts to form sustainable clusters of economic growth and development with the help of SEZs created in hard-to-reach, including "northern" territories.

Attention should be paid to the views expressed on the advisability of creating so-called "international" SEZs, in which foreign people could work, based on the legislation of the countries in which they are registered.

As noted above, the law of the Union provides that a person applying for inclusion in the register of SEZ residents and conducting activities as a SEZ resident must be registered in accordance with the legislation of the Union member state on whose territory the corresponding SEZ was created.

Consequently, the proposals providing for the application of the FCZ customs procedure in the international SEZ in strict accordance with the law of the EAEU and the legislation of the Russian Federation deserve support. In this case, a legal entity that is a commercial organization, the state registration of which was carried out in accordance with the legislation of the Russian Federation, can be recognized as a resident of an international SEZ.

Taking into account the requirements of the Union law, which stipulates that a person who applies for inclusion in the register of SEZ residents and conducting activities as a SEZ resident must be registered in accordance with the legislation of the Union member state on whose territory the corresponding SEZ was created, we believe that when developing initiatives (proposals) providing for the creation of international (cross-border) SEZs with the possibility of carrying out activities in them as residents (participants) of foreign entities, the FCZ customs procedure should not be used in such SEZs.

Additional simplifications available to SEZ residents

As noted above, current regulation provides for the possibility of creating SEZs in the Arctic (for example, advanced development territories and the Arctic zone of the Russian Federation). On the territory of the SEZ, the FCZ customs procedure can be applied, which makes it possible to conduct business activities using foreign goods without paying customs duties.

The EAEU Customs Code includes Chapter 27 "Customs procedure of a free customs zone" (FCZ), which establishes the conditions for the presence of goods under the FCZ customs procedure, such as the presence of goods in a special territory, intended use, etc.

Federation" dated July 07, 2020 No. 193-FZ (latest edition)]. URL: consultant.ru (accessed 14 August 2023); Federal'nyy zakon «O territoriyakh operezhayushchego sotsial'no-ekonomicheskogo razvitiya v Rossiyskoy Federatsii» ot 29.12.2014 N 473-FZ [Federal Law "On territories of rapid socio-economic development in the Russian Federation" dated December 29, 2014 No. 473-FZ]. Federal'nyy zakon «O territoriyakh operezhayushchego sotsial'no-ekonomicheskogo razvitiya v Rossiyskoy Federatsii» ot 29.12.2014 N 473-FZ (poslednyaya redaktsiya) [Federal Law "On territories of rapid socio-economic development in the Russian Federation" dated December 29, 2014 No. 473-FZ (latest edition)]. URL: consultant.ru (accessed 14 August 2023); Federal'nyy zakon «O svobodnom porte Vladivostok» ot 13.07.2015 N 212-FZ (poslednyaya redaktsiya) [Federal Law "On the Free Port of Vladivostok" dated July 13, 2015 No. 212-FZ (latest edition)]. URL: consultant.ru (accessed 14 August 2023).

At the same time, the law of the Union and the federal laws adopted in accordance with it on the "Far East-Arctic SEZ" for residents (participants) of the SEZ provide for significant simplifications in the procedure for applying the FCZ customs procedure (hereinafter — simplifications).

In order to implement the provisions of the EAEU Code related to simplifications, a decision of the Council of the Eurasian Economic Commission dated December 20, 2017 No. 88 "On some issues of applying the customs procedure of a free customs zone" (hereinafter — the Decision) was prepared) [20].

These acts, in particular, provide that in relation to goods placed under the FCZ customs procedure, and (or) goods manufactured (obtained) from goods placed under the FCZ customs procedure, any operations are allowed to be carried out on the territory of the SEZ, including consumption of goods other than the consumption of goods during operations for the processing of goods placed under the FCZ customs procedure (hereinafter — other consumption of goods).

For other consumption of goods, a simplified procedure has been established for completing the FCZ customs procedure and, accordingly, terminating the presence of goods under customs control [21].

This simplification also applies to such cases of other consumption of goods as consumption of goods during the creation, operation, repair and reconstruction of real estate objects in the SEZ territory, operation and (or) maintenance of equipment, consumption for scientific purposes, etc.

The possibilities for exporting goods placed under the FCZ customs procedure and (or) goods manufactured (obtained) from goods placed under the FCZ customs procedure from the territory of the SEZ without completing the FCZ customs procedure have also been expanded.

This simplification also applies to cases of export of goods from the territory of the SEZ to the rest of the territory of Russia for own production and technological needs, as well as for carrying out operations for processing, manufacturing of goods.

This simplification can be practically in demand by Russian organizations — residents (participants) of the territories of advanced development and the Arctic zone of the Russian Federation.

Research results

1. The use of special territories, such as special (free) economic zones, where the customs procedure of a free customs zone (FCZ) can be applied, is an important instrument of state economic policy, which is aimed, among other things, at creating comfortable conditions for taxation of foreign goods by customs payments, used in such territories within the framework of the FCZ customs procedure.

[20] Decision of the Council of the Eurasian Economic Commission dated December 20, 2017 No. 88 "On some issues of applying the customs procedure of a free customs zone". Decision of the EEC Council dated December 20, 2017 No. 88. Customs documents. URL: alta.ru (accessed 14 August 2023).
[21] Article 129 of the EAEU Customs Code.

2. Issues regarding the status of goods manufactured in the SEZ using foreign goods that are placed under the FCZ customs procedure are largely related to Russia's international obligations that underlie the current regulation.

3. The practical use of the analyzed simplifications, the complex of which is established in the Customs Code of the EAEU and the national laws of the Russian Federation adopted in accordance with it for various types of SEZs, creates conditions for SEZ residents to conduct their activities more efficiently.

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Cooperation between Russia and China in the Arctic Energy Sector: A Strategic Perspective

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Abstract. The imposed sectoral restrictions on the Russian Federation and the current macroeconomic situation create prerequisites for building a new model of cooperation with Asian countries, primarily with the People's Republic of China. The People's Republic of China demonstrates a strategic approach to joint implementation of energy projects in the Arctic, having shares in joint ventures with Russian energy companies (Yamal LNG, Arctic LNG-2). Yamal LNG, the most complex technological project in the Arctic for the production of liquefied natural gas (LNG), located on the Yamal Peninsula above the Arctic Circle on the basis of the South Tambeyskoe field, has become the flagship of Russian-Chinese cooperation in the Arctic. The joint implementation of this project has the most important geostrategic and industrial significance in the global energy industry, clearly demonstrating the capabilities of the two countries in creating high-tech solutions for gas liquefaction in difficult climatic conditions. It is important that such projects have powerful complex-forming and multiplicative effects, creating conditions for the maximum utilisation of the industries of both countries, as well as for the construction of infrastructure along the Northern Sea Route and the creation of a high-tech fleet for the transportation of liquefied natural gas. Despite the existing legal disagreements between Russia and China regarding economic activities in the Arctic, in light of the current macroeconomic situation, interaction with Asian partners is a promising area of cooperation in the implementation of joint technological projects. With significant financial resources and accumulated engineering and technical competences, the People's Republic of China is one of Russia's most reliable partners in the context of implementing energy projects. It is important that China is also a buyer of Russian energy resources, which ensures a stable market for hydrocarbons. The publication analyses the development of Russian-Chinese relations and considers the prospects for joint economic cooperation in the Arctic in the energy sector.

Keywords: *Arctic zone, international cooperation, Northern Sea Route, joint management, hydrocarbons*

Introduction

In May 2023, Russian Prime Minister Mikhail Mishustin made an official visit to China as part of a large-scale Russian-Chinese business forum in Shanghai. Speaking at the Plenary Session

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of the forum, Mikhail Mishustin emphasized that the PRC plays a special role for Russia in matters of foreign trade, and the trade turnover between the two countries tends to 200 billion USD [1].

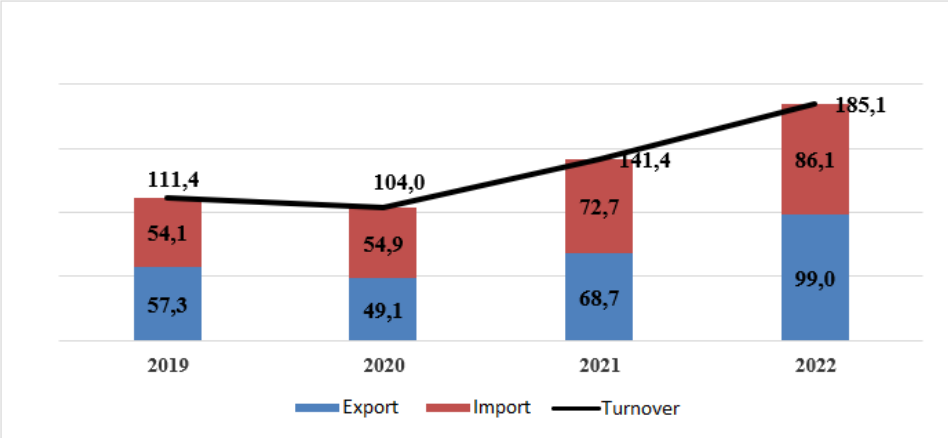

Fig. 1. Trade turnover between Russia and China in 2019–2022 (billion USD) [2].

The leaders of the two countries have outlined the goal of further expanding interaction in the field of innovation, industrial and technological cooperation. Moscow has declared its readiness to support the joint Russian-Chinese projects: according to M. Mishustin, there are currently about 80 investment projects, the total investment volume of which exceeds 165 billion USD [3].

The Russian Prime Minister sees significant potential in the development of bilateral relations in the field of mechanical engineering for the fuel and energy complex, as well as the use of innovative solutions in the field of oil and gas chemistry and oil refining.

Cooperation in the energy sector is one of the key areas of Russian-Chinese partnership. Despite certain legal contradictions in approaches to regulating economic activity in the Arctic, Russia and China already have serious experience in implementing joint projects in the energy sector.

In recent history, Russian-Chinese relations have transformed from what is commonly referred to as a constructive partnership to the level of strategic interaction. Its most important area, defined at the level of state documents, was cooperation in matters of Arctic development. The parties emphasized that the joint development of the Arctic spaces can give impetus to the development of interaction in other interconnected areas, for example, in the transport sector — in the joint development of the Northern Sea Route [1, Sun S.].

Currently, the Northern Sea Route (NSR) is acquiring particular importance not only from the point of view of the export of natural resources from Russian territory, but also from the perspective of cargo transit from Asia to Europe and back [2, Veretennikov N.P., Bogachev V.F., Ulchenko M.V.].

[1] Mikhail Mishustin vystupil na ekonomicheskom forume v Shankhae [Mikhail Mishustin spoke at the economic forum in Shanghai]. URL: https://rg.ru/2023/05/23/raschet-na-rubl-i-iuan.html?ysclid=lksd2369xr855938629 (accessed 12 June 2023).
[2] O rossiysko-kitayskom torgovo-investitsionnom sotrudnichestve [On Russian-Chinese trade and investment cooperation]. URL: https://interaffairs.ru/news/show/41219?ysclid=lks02e5o4j270127152 (accessed 10 August 2023).
[3] Mikhail Mishustin vystupil na ekonomicheskom forume v Shankhae [Mikhail Mishustin spoke at the economic forum in Shanghai]. URL: https://rg.ru/2023/05/23/raschet-na-rubl-i-iuan.html?ysclid=lksd2369xr855938629 (accessed 12 June 2023).

Along with this, it is worth noting that a number of experts have differently assessed the prospects of China's presence in the Arctic as a strategic partner of Russia, speaking about the "Chinese threat" to the Arctic. Such positions of experts were based on differences in interpretation of international documents dedicated to the Arctic ("Svalbard Treaty" of 1920, UN Convention on the Law of the Sea of 1980), including the range of unresolved aspects of the Arctic agenda [1].

China views the Arctic as the "common heritage of mankind", which implies the internationalization of the NSR, and, as a consequence, the possibility of using this highway by all participants in the development of the Arctic. Obviously, such views are at odds with Moscow's official position on this issue [3, Zhuravel V.P.].

Russia takes an unambiguous position, declaring that the Northern Sea Route passes through the waters belonging to the Russian Federation, which means that passage in these waters should be regulated by the legislation of the Russian Federation.

Along with this, despite these disagreements, some experts have highest regard for the prospects for Russian-Chinese cooperation in the Arctic, including in the energy sector. Companies from the PRC can act as both partners and investors in energy projects implemented in the Russian Arctic, which can ensure the transfer of advanced technological experience. Another key factor of such cooperation may be the diversification of the financial burden within the framework of joint implementation of projects [4, Pestsov S.K., Tolstokulakov I.A., Labyuk A.I., Kolegova E.A.].

It is important that a number of Chinese experts consider the joint implementation of energy projects in the Arctic as a strategic basis for bilateral interaction between the two states. In particular, the Yamal LNG project has become the flagship of such cooperation, capable of bringing a significant multiplier effect and of great strategic importance for both states. It is important that this project is considered in close connection with the development of the Northern Sea Route [1].

Thus, the energy sector can become the sphere where Russian-Chinese cooperation can be very effective, and the joint implementation of energy projects in the Arctic will serve as a basis for the development of many related industries, forming multiplicative and complex-forming effects [5, Romasheva N.V., Babenko M.A., Nikolaichuk L.A.].

Materials and methods

The study is based on materials concerning the development of Russian-Chinese relations in the Arctic zone. Publications and scientific works of Russian and foreign scientists in the field of international relations, joint implementation of projects in the energy sector in the Arctic, experience in regulating socio-economic processes in the development of oil and gas fields, and state regulation of the development of hydrocarbon resources were used.

When preparing the paper, publications on the topic of the article, state intergovernmental documents and agreements, media publications, materials of international conferences dedicated

to the development of Russian-Chinese relations, information from project operators working on the Arctic shelf of the Russian Federation were analyzed.

Discussion of results

China demonstrates a truly balanced and strategic approach in pursuing both domestic and foreign policies. The leadership of the PRC strives to look several decades and even centuries ahead. This is evidenced by the adoption in the near future of a 200-year development strategy for the state. And the Arctic occupies a significant position on the economic agenda of China's state strategy.

It is worth noting that China, having no access to the Arctic Ocean, has managed to obtain the status of a "Near-Arctic" state (近北极国家), justifying its interest in participating in the study of the Arctic by the climate changes occurring in it, which is of great importance to the People's Republic of China [4]. Conducting environmental research in the Arctic is one of the key topics on the scientific agenda of the PRC, since climate change in the Arctic zone has a significant impact on the climatic conditions of a number of regions of China. Taking into account the relevance of reducing emissions of harmful substances into the environment, conducting environmental research that can directly or indirectly improve the situation in this area is truly urgent for China. Ultimately, it is about ensuring sustainable development of China [6, Dmitrieva D., Romasheva N.].

However, we should not forget that, according to experts, up to 25% of all hydrocarbon reserves on the planet are concentrated in the depths of the Arctic [7, Chater J.] (Fig. 2).

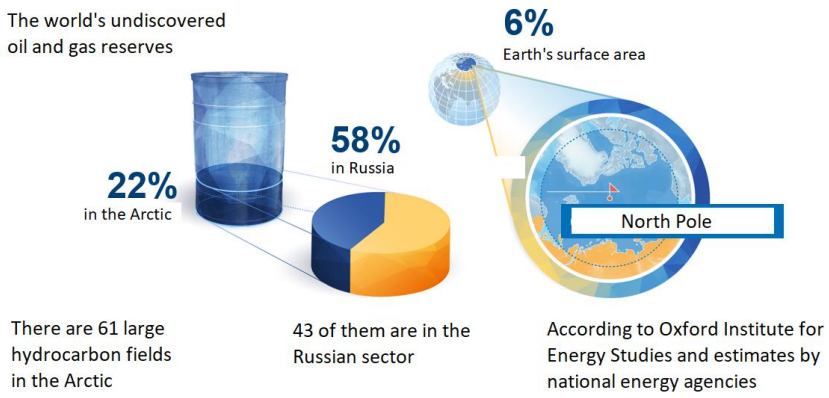

Fig. 2. The Arctic in figures [5].

In addition to oil and gas, there are many promising deposits of rare-earth metals in the Arctic. It is obvious that China, being one of the leaders in instrument engineering, electronics and experiencing a growing demand for rare-earth metals on its own territory, is directly interested in the development of such resources, which are widely used, including in the creation of alternative energy sources [5].

[4] China's Arctic Policy. The State Council the People's Republic of China. URL: https://english.www.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm (accessed 12 June 2023).
[5] PJSC Gazprom Neft. Official website of the company. URL: www.gazprom-neft.ru (accessed 15 June 2023).

It is worth noting that the PRC has historically sought to build long-term partnerships with almost all states that are members of the Arctic Council. It is noteworthy that, according to statistical data for 2017, the PRC acted as the most important trade partner for Alaska, which exports its products (natural resources and seafood) to the PRC in the amount of about 1.3 billion USD, as well as various services amounting to 135 million USD annually [6].

China has also been negotiating with Greenland on aviation infrastructure, offering to build airports in Greenland in exchange for potential rights to participate in the development of natural resources. Greenland has a huge territory — over 2 million km², where only 56 thousand inhabitants live. Greenland is a resource base for the development of deposits of rare-earth metals: uranium, cerium, yttrium, lanthanum and neodymium. The demand for these metals is growing; the production of smartphones, wind turbines and electric vehicles is impossible without them [7].

Two years ago, Chinese representatives negotiated the purchase or long-term lease of an airport and related aviation infrastructure in Finland. However, this deal was not approved at the governmental level for security reasons.

Taking into account the historically constructive relations between Russia and China, we can confidently say that China is a strategic partner for our country. This fact was also reflected in the documents signed during the visit of Chinese President Xi Jingping to Russia in 2013. In particular, the Joint Statement of the Russian Federation and the People's Republic of China was signed, which reflected the need to transform the achieved political decisions into practical solutions. At the same time, the Statement emphasized that such a task is of a strategic nature [1]. Along with this, interaction in the oil and gas sector was considered as one of the priority areas of cooperation between the two states [8].

Shortly before the signing of the above Statement, the Russia-China Energy Dialogue, a collegial body aimed at coordinating and strengthening cooperation between the two states, was officially launched. Later, in 2012, the Energy Dialogue was renamed the Intergovernmental Russian-Chinese Commission on Energy Cooperation.

In 2014, Russian President Vladimir Putin visited the PRC; during this visit another Statement was signed between the two countries, dedicated to a new stage in the development of cooperation. It is worth noting that this visit was marked by the signing of a contract for the supply of 38 billion m^3 of natural gas to China via the Power of Siberia gas pipeline over 30 years.

In 2014, additional documents of strategic nature were signed within the framework of interaction between the two states. In particular, the two countries signed a memorandum on natural gas transit under the Power of Siberia-2 project and a framework agreement between China

[6] Fadeev A. S pomoshch'yu Kitaya Rossiya mozhet uskorit' osvoenie Arktiki [With the help of China, Russia can accelerate the development of the Arctic]. GoArctic. URL: https://goarctic.ru/politics/aleksey-fadeev-s-pomoshchyu-kitaya-rossiya-mozhet-uskorit-osvoenie-arktiki/?ysclid=lktd68zjwt774932885 (accessed 12 June 2023).
[7] Ibid.
[8] V Moskve sostoyalas' vstrecha Si Tszin'pina i Vladimira Putina [Xi Jinping and Vladimir Putin met in Moscow]. www.russian.people.cn. 23.03.2013. URL: http://russian.people.com.cn/31519/8179663.html (accessed 21 June 2023).

National Petroleum Corporation PJSC Gazprom, ensuring the supply of natural gas to China from Russia. In addition, a memorandum of understanding was also signed between the China National Maritime Corporation and PJSC Gazprom [9].

Bilateral relations in the energy sector were further developed in September 2013 at the G20 summit in St. Petersburg. During the summit, China's CNPC purchased a 20% stake in the Yamal LNG project. This circumstance marked the beginning of energy cooperation between Russia and China in the high Arctic latitudes (Fig. 3).

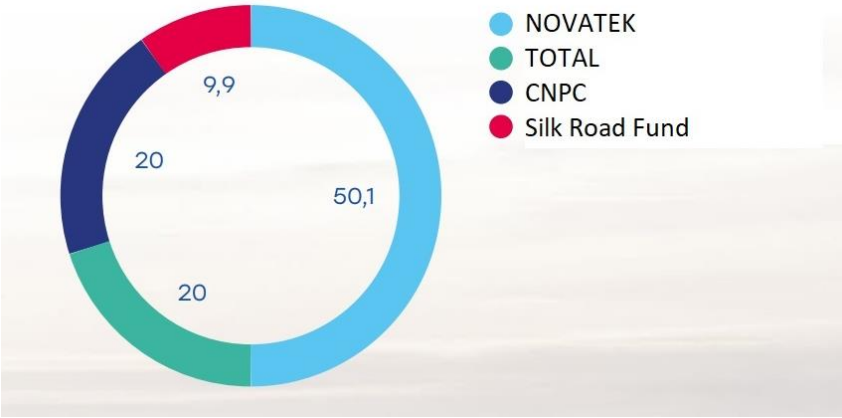

Fig. 3. Shareholders of Yamal LNG, % [10].

Later, in 2015, the two countries signed further statements aimed at developing bilateral cooperation in a number of areas. Thus, over three dozen agreements and treaties were signed in the energy, space and aviation sectors for a total amount exceeding 30 billion USD. A special mention should be made of the signing of the most important document — the Joint Statement on Cooperation on the Construction of Joint Eurasian Economic Union (EAEU) and the Silk Road Economic Belt (SREB). The parties noted that special attention would be paid to Arctic development projects and cooperation in the oil and gas sector [11].

In recent years, cooperation between Russia and China in the energy sector has become one of the key topics of bilateral international interaction [8, Erokhin V., Tianming G., Xiuhua Zh.].

The colossal hydrocarbon resource base in the Arctic creates the basis for long-term international cooperation between Russia and China in this region. It is worth noting that interaction also has significant multiplicative and complex-forming effects [9, Fadeev A.M., Lipina S.A., Zaikov K.S.], since the joint implementation of energy projects stimulates the use of the Northern Sea Route (NSR) and the socio-economic development of coastal regions located along the NSR route.

In addition, the integration of the Eurasian Economic Union and the Silk Road Economic Belt opens up prospects for the creation of a Russian-Chinese Arctic Free Trade Area (AFTA). Ac-

[9] RF i KNR podpisali memorandum o postavkakh gaza po «zapadnomu marshrutu» [The Russian Federation and China signed a memorandum on gas supplies via the "western route"]. URL: https://ria.ru/east/20141109/1032414339.html (accessed 02 June 2023).
[10] Pokorenie Arktiki. Na chto sdelat' stavku investoru? [Conquest of the Arctic. What should an investor bet on?]. URL: https://elitetrader.ru/index.php?newsid=581382&ysclid=lktdf393o7272483961 (accessed 27 June 2023).
[11] Rossiya i Kitay nachinayut desyatki sovmestnykh proektov [Russia and China are starting dozens of joint projects]. URL: https://vz.ru/politics/2015/5/8/574698.html?ysclid=lktdi9sp8l873136092 (accessed 10 June 2023).

cording to the joint statement on the integration of the EAEU and the SREB, the parties intend to ensure sustainable economic regional growth, economic integration, and take synchronized mutual steps to connect the EAEU and SREB construction processes [12]. The result of their effective integration may be the formation of a unique platform for cooperation between Moscow and Beijing.

The People's Republic of China has significant financial resources and investment plans, which ensures the stability of science- and capital-intensive joint energy projects in the Arctic.

The developing economy of China is able to provide a stable market for coal and hydrocarbons produced in the Russian Arctic [10, Zhao L.]. It is noteworthy that the basis of the explored hydrocarbon resources of the Arctic shelf are gas and gas condensate fields (about 85%). This fact is important in the light of China's attempts to reduce oil supplies from abroad for processing at its own refineries: the dominance of natural gas in the Arctic fields will exclude possible fluctuations in demand for this type of hydrocarbons.

The analysis of implemented offshore projects in the Arctic shows that one of the obstacles to their successful implementation is the limitations in the possibilities for long-term financing. Cooperation between Russia and China in this area can be realized through a number of financial institutions, such as, for example, the Silk Road Fund. The main task of this Fund is to finance joint projects within the framework of the global initiative "One Belt, One Road". Joint ventures and various investment funds can also be used to finance projects in the Arctic.

Russian-Chinese cooperation in the development of offshore hydrocarbon deposits in the Arctic acts as a driver of socio-economic growth in the Arctic regions, creating multiplier effects through the involvement of large industries in the implementation of projects: metallurgy, mechanical engineering, transport and construction complexes, scientific, consulting and financial organizations [11, Peshkova G., Antohina Y., Smirnova N.]. According to statistics, one job in the Arctic creates fourteen jobs in adjacent regions.

The implementation of joint energy projects will contribute to the creation of new jobs, growth of the tax base, the inflow of highly qualified specialists, and a positive change in the demographic situation in general [12, Tsyglyanu P.P., Romasheva N.V., Fadeeva M.L., Petrov I.V.].

The PRC's interest in cooperation with the Russian Federation is dictated by several circumstances: first of all, the solution of energy security issues, which is an integral part of China's overall national security.

The prospects of using the Northern Sea Route deserve special attention in the light of the emerging geopolitical situation in the Middle East. Israel's statements about the complete blockade of the Gaza Strip, the presence of the US Navy in the eastern part of the Mediterranean Sea, as well as the potential involvement of Egypt in the conflict (the Suez Canal, the world's main car-

[12] Sovmestnoe zayavlenie Rossiyskoy Federatsii i Kitayskoy Narodnoy Respubliki o sotrudnichestve po sopryazheniyu stroitel'stva Evraziyskogo ekonomicheskogo soyuza i Ekonomicheskogo poyasa Shelkovogo puti [Joint statement of the Russian Federation and the People's Republic of China on cooperation in linking the construction of the Eurasian Economic Union and the Silk Road Economic Belt]. URL: http://www.kremlin.ru/supplement/4971 (accessed 05 July 2023).

go artery connecting the Mediterranean and Red Seas, passes through Egypt) — factors that create significant military and transport risks, leading to increased freight rates and insurance premiums, which will ultimately affect the cost of transported products and weaken their position in global commodity markets.

Considering these events, the use of the Northern Sea Route by China to supply liquefied natural gas to the country to solve energy security issues, as well as the transit of goods from China to Europe, is more than a promising solution that provides speed, economic benefits and security [13, Laverov N.P., Popovich V.V., Vedeshin L.A., Konovalov V.E.].

We should not forget about the environmental problems existing in the PRC, which are of a serious nature. In 2012, environmental issues were integrated into the state's national strategy. For this reason, China has its own views on clean energy in the form of natural gas from the Russian Arctic.

Joint implementation of energy projects in the Arctic opens up opportunities for China to explore Arctic waters, address environmental protection issues, develop polar research and scientific expeditions, and contribute to infrastructure creation.

Another important aspect of China's participation in joint projects may be the strengthening of the geopolitical influence of the state in this region, which is especially important from the perspective of considering the Arctic as a promising market for the sale of material and technical resources and technologies produced in the PRC. Currently, Chinese equipment and technologies are already being used in projects related to the extraction of natural resources on the shelf, including in the Arctic. Thus, the PRC has a unique fleet of drilling rigs that sometimes surpass Western analogues in terms of their characteristics, which allows them to actively integrate into energy projects implemented in the world, consistently gaining a reputation as reliable long-term partners.

The Yamal LNG project has become the flagship of Russian-Chinese interaction and created a precedent for the transition from interstate oil and gas trade to joint implementation of projects in the Arctic. China side received the opportunity to partially participate in the supply of construction materials, equipment and logistics for the project as a whole. The Yamal LNG project also provided Chinese companies with integration into the field of global technologies for the extraction and processing of hydrocarbons, as well as the opportunity to cooperate with international companies, such as, for example, the French concern TotalEnergies and Daewoo Shipbuilding & Marine Engineering. The result of this interaction was the signing of a document on strategic partnership between TotalEnergies and CNPC in March 2016 [13].

LNG exports from Russia to China increased by 23% in 2023. Volume of LNG exports is on an upward trend, which is reflected in the participation of Chinese partners in other Russian energy projects.

[13] CNPC Annual Report 2016. URL: 4f1cfc8cb2b6492999eaeba0f5b08262.pdf (cnpc.com.cn) (accessed 10 September 2023).

Thus, another significant event of international cooperation with China is the implementation of the Arctic LNG-2 project, which provides for the construction of three LNG production lines with a capacity of 6.6 million tons per year each on gravity-type foundations on which LNG modules are installed.

The shareholder structure of this project is as follows: Russian NOVATEK — 60%, French TotalEnergies, Chinese CNPC and CNOOC, as well as a consortium of Japanese Mitsui and JOGMEC — 10% each.

The implementation of this project is also of great geopolitical significance: Russia is demonstrating the ability to implement complex technological and energy projects against the backdrop of unprecedented sanctions imposed against it. Technological sovereignty in the energy sector is now not just a slogan, but real practical steps.

At the beginning of November 2023, the sanctions were imposed on the Arctic LNG-2 project. What will be the future of the project? To what extent can the restrictions cease its realization? According to US Assistant Secretary of State Geoffrey Pyatt, the main goal of the sanctions is to stop the work of the Russian-Arctic LNG-2 project.

In order to answer these questions, it is important to analyze the recent history of the Russian oil and gas complex under conditions of sectoral restrictions, including in the Arctic.

Arctic LNG-2 is not the first Russian project to fall under sanctions. The first sectoral restrictions introduced back in 2014 included a ban on technology transfer for hydrocarbon exploration in the Arctic.

Logical questions arise: where can technology transfer be banned from? Which country in the world has the technology to develop deposits in the harsh conditions of the Arctic? Which state is currently conducting geological exploration, industrial production of hydrocarbons or LNG production in high Arctic latitudes? The answer is obvious: none, except Russia. The Russian Federation has unique competencies not only in matters of industrial oil production in the Arctic (Prirazlomnoe project, Novyy Port project), liquefaction of natural gas (Yamal LNG project), but also in matters of transportation of oil and liquefied natural gas in ice conditions. No other state in the world has such experience.

In addition, the macroeconomic challenges that arose during that period, caused by the introduction of sectoral restrictions on the supply of equipment for hydrocarbon production in the Arctic, marked the beginning of Russia's own technology policy, the formation and development of import substitution strategies aimed at rapid escape from import dependence.

Probably, the sanctions made the implementation of these projects a little less convenient: energy companies needed to reorient the supply of some oil and gas equipment and technologies from the West to the East, but most importantly, the sanctions created additional opportunities for the development of the Russian market of suppliers to the oil and gas industry.

The Russian Federation has completed a significant amount of work related to the development of the national service market of suppliers and contractors. Dozens of alternative substi-

tution strategies being implemented today by Russian energy companies, which are aimed at developing domestic import substitution programs and escaping from import dependence, are already producing results.

For example, the innovative technology for liquefying natural gas "Arctic Cascade" is one of the solutions in the field of ensuring technological independence, allowing for reduction in the cost of liquefying natural gas by up to 30%. A distinctive feature of this technology is a unique combination of various methods for improving the processes of cooling and liquefying natural gas.

China's involvement as a partner also brings obvious advantages for the Russian Federation. First of all, it is a diversification of hydrocarbon supplies for the long term and an opportunity to strengthen Russia's geopolitical position in the global energy market. It is necessary to take into account that the "shale revolution" continues to influence the global energy sector and the balance of power in it, which, of course, leads to a certain competition between shale gas and Arctic LNG. This circumstance requires operators of Arctic projects to develop a clearly defined strategy for working in the Arctic [14, Humrich C.].

Another important economic effect of implementing joint energy projects in the Arctic is an increase in the cargo base for transportation along the Northern Sea Route, the development of which is considered one of the priorities for Russia [15, Voronina E.P.]. Let us recall that investments in the NSR infrastructure should amount to 1.8 trillion rubles by 2035, and the planned cargo flow should exceed 200 million tons by this time [14].

Ensuring such a level of cargo flow invariably entails the need for a large-scale reconstruction of the existing port infrastructure and the introduction of new capacities, laying fiber-optic communication lines, and carrying out dredging work in a number of water areas [16, Selin V.S., Kozmenko S.Yu.]. Special attention is required to create a fleet with a high ice class, the preliminary number of which is estimated at about 80 vessels for various purposes.

No less important is the investment potential of the PRC. In the first quarter of 2021, China increased its GDP by 18%. In 2020, when the pandemic happened and many countries were "in the minus column", China brought the economy to the plus side by 2%. In 2022, China's gross domestic product (GDP) was 121,020.7 trillion yuan (approximately 18 trillion USD), an increase of 3% in per year terms [15]. The country has a wide range of investment opportunities, and this is very important in the context of financing energy projects in the Arctic, which are traditionally capital-intensive.

One of the most important aspects of effective cooperation between China and Russia in the Arctic should be joint research and development on the most pressing issues of exploration,

[14] Fadeev A. Schitayu kontseptsiyu po razvitiyu SMP dostatochno prorabotannoy i obosnovannoy [I consider the concept for the development of the Northern Sea Route to be quite well-developed and justified]. URL: https://ngv.ru/articles/aleksey-fadeev-schitayu-kontseptsiyu-po-razvitiyu-smp-dostatochno-prorabotannoy-i-obosnovannoy/?ysclid=lktdzjox4d611841995 (accessed 12 June 2023).

[15] Rost VVP Kitaya zamedlilsya do 3% [China's GDP growth slows to 3%]. URL: https://www.rbc.ru/rbcfreenews/63c6343f9a7947219774dc2b?ysclid=lkqzo7n6zp487789784 (accessed 12 June 2023).

production and processing of hydrocarbons. One of the successful examples of cooperation in this area is the international center for Arctic studies created in 2016 on the initiative of Harbin Institute of Technology and the Far Eastern Federal University. The specialists of this center are involved in the design of production platforms on the shelf, managing ice conditions and ensuring the operation of marine equipment in difficult climatic conditions [16].

Russia needs to involve Chinese companies in the implementation of energy projects through the creation of joint ventures, investment funds, R&D, creation and supply of high-tech equipment for work in the Arctic. It is necessary to ensure a favorable investment climate by providing preferences and tax benefits, creating priority development areas, and creating institutional conditions that would guarantee transparency and stability to Chinese investors [12].

China is cooperating with Alaska, a state where about 5 thousand residents live in its northernmost city. In Russian Murmansk there are currently about 300 thousand people. And this is against the backdrop of negative demographic trends. It is necessary to take into account the created infrastructure, the existing engineering and personnel potential of the Russian regions, accumulated since Soviet times, unique enterprises, the activities of which can be diversified for the implementation of energy projects [17, Fadeev A.M., Vopilovskiy S.S., Fedoseev S.V., Kuprikov M.Y., Avdonina N.S.].

International cooperation will become an effective tool for the economic development of the two states, ensuring energy security for many decades.

Conclusion

Russian-Chinese cooperation in the energy sector has significant potential for development [18, Liu G., Xu Q., Chen Y.]. Despite different approaches in the legal field regarding the sovereignty of the Arctic, the parties managed not only to find a compromise on a number of controversial issues, but also to move partnership agreements from paper to practice.

The implementation of the Yamal LNG project marked the beginning of technological cooperation in the Arctic between the two countries. It is worth noting that no state in the world, except the Russian Federation, has the competence to transport liquefied natural gas and oil in ice, including along the Northern Sea Route. Cooperation between Russia and China in the energy sector can become a driver not only of technological development in the context of the implementation of joint energy projects, but also contribute to significant socio-economic development of the Arctic territories, creating multiplier and complex-forming effects, inducing domestic demand in related industries [11].

Such cooperation has important geopolitical significance: Russia and China are forming a new pole of gravity in the world in the energy sector, demonstrating truly effective cooperation and partnerships. As a result, Russia has the opportunity to develop an effective strategy for the development of the Arctic as a whole [19, Tsvetkova A.]. At the same time, it is extremely important that the devel-

[16] Shatilova M. DVFU i Kharbinskiy universitet sozdali sovmestnyy tsentr po izucheniyu Arktiki [FEFU and Harbin University have created a joint center for the study of the Arctic]. URL: http://tass.ru/nauka/3662445 (accessed 07 August 2023).

oped strategy should be based on the competitive advantages of the system under consideration with a mandatory assessment of resource constraints [20, Kvint V.L.].

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Social Risks of Achieving Sustainable Development in the Arctic Region

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Abstract. The sustainable development of circumpolar countries is of great importance for the whole world, because the Arctic Region is currently experiencing an unprecedented level of economic activity. From the perspective of the concept of sustainable development, the intensification of industrial activity in the Arctic region makes the issues of achieving long-term environmental and social sustainability for local communities relevant. Despite the fact that the Arctic countries, especially the countries of Northern Europe, are leaders in achieving the UN Sustainable Development Goals, additional attention is needed to coordinate efforts to achieve them at all levels of administrative-territorial management. The relevance of our study is determined by the need to overcome the challenges and threats to the sustainable development of the Arctic territories of circumpolar countries. The aim of the study was to analyze the social risks of achieving sustainable development of the Arctic region. The methodological basis of the study was the system approach, methods of structural-historical and comparative-geographical analysis. It was substantiated that social risks in achieving sustainable development in the Arctic region are limited access to educational services; social tension in the labor markets, produced by professional and qualification imbalances of labor demand and supply and problems of youth employment; child poverty and poverty of the indigenous population. The scientific novelty of the research is in substantiating the social risks that pose a threat to the sustainable development of the Arctic region. The prospects for further research are conditioned by the need to solve urgent socio-economic and managerial problems associated with the sustainable development of the Arctic region.
Keywords: *Arctic region, sustainable development, poverty, unemployment, social sustainability*

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Introduction

In 2015, the international community adopted the 2030 Agenda, based on the trinity of social, economic and environmental sustainability [1, p. 13] — the ultimate long-term goals of realizing human rights. The Sustainable Development Goals (SDGs) outlined by the Agenda bring together the efforts of countries in a wide range of economic (economic growth, industrialization, innovation and infrastructure, sustainable cities, responsible consumption and production), environmental (climate change, conservation of marine and terrestrial ecosystems, clean energy) and social (elimination of poverty and hunger, good health and well-being, quality education,

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reduction of inequalities) functional areas. The most important element of the success of sustainable development on a global scale is the localization of the SDGs, i.e. interaction and coordination of efforts to achieve them at all levels of administrative and territorial management, since the opportunities and problems of sustainable development vary significantly not only across countries, but also within them [2, p. 1027].

The Arctic region [1] today occupies a special place in global politics. The long-term interests of circumpolar countries in the Arctic region are associated with the world's largest mineral reserves. The traditional use of natural resources by the indigenous population and the development of Arctic shipping play an important role in the economic development of such countries. The Arctic territories of circumpolar countries are characterized by the predominant development of resource-extracting industries; poor development of transport and logistics infrastructure; high vulnerability of the living environment; the need to preserve the authentic way of life of the indigenous population; limited human capabilities for self-development, produced by the economic specifics of the Arctic territories. Undoubtedly, the strategic importance of the Arctic territories determines the implementation of Arctic policy by the circumpolar countries, the basis of which should be sustainable development.

Degree of development of the issue

Studies of sustainable development of the Arctic region are numerous, but the format of this article limits the possibility of citing scientific articles that reflect their results. Certain aspects of such studies include an analytical review of strategic documents of foreign northern countries on Arctic policy issues [3, p. 38; 4, p. 417]; studying decision-making methodologies and developing tools for managing Arctic territories [5, p. 37]; searching for effective directions of state policy to create conditions for sustainable socio-economic development of the Arctic territories [6; 7, p. 128]; analysis of management institutions in the field of sustainable development of the Arctic regions [8, pp. 119–120]. The studies of economic sustainability of the Arctic region include the issues of rational nature management [9; 10, pp. 4–6], including the exploration and exploitation of natural resources [11, pp. 99–100] and the effective use of the industrial potential of coastal territories during the development of shelf deposits [12]; issues of development of Arctic infrastructure [13], including issues of development of transport infrastructure [14, pp. 180–183; 15, pp. 42–43] and its digitalization [16, p. 1]; issues of diversification of Arctic economies [17, p. 107], development of tourism [18, p. 47; 19, p. 142] and agriculture [20, p. 100]. A wide range of works is devoted to environmental sustainability in the Arctic. These include studies of the impact of a changing regional climate on Arctic ecosystems and local communities [21, pp. 407–410] and issues of environmental safety management in the Arctic [22], solid waste management [23, pp. 340–345], etc. On the contrary, studies of the issues of

[1] Vliyanie Polyarnogo Shelkovogo Puti na arkticheskiy region: vozmozhnosti i riski [The impact of the Polar Silk Road on the Arctic region: opportunities and risks]. URL: https://www.ankasam.org/влияние-полярного-шелкового-пути-на-а/?lang=ru (accessed 04 March 2023).

social sustainability of the Arctic region are sporadic; there is a study of the contribution of local youth to the social sustainability of Arctic cities [24], an analysis of problems associated with the uninterrupted delivery of goods within the framework of northern delivery [25, pp. 15–16], issues of transition to expanded reproduction of human capital [26, pp. 852–853], as well as a study of the problems of assessing social sustainability and determining ways to achieve it in the regions of the Russian Arctic [1].

The aim of our research was to analyze the social development of the Arctic territories in the framework of achieving the SDGs of the Arctic region. In this study, we understood the Arctic region as Iceland, the Arctic territories of Norway, Sweden, Finland, Denmark, Canada, the USA, as well as regions of Russia, the territories of which are fully included in the Arctic zone. The methodological basis of the study was a systematic approach, methods of structural-historical and comparative-geographical analysis. The scientific novelty of the study is in the substantiation of social risks that pose a threat to the sustainable development of the Arctic territories of circumpolar countries. Prospects for further research are related to the solution of urgent socio-economic and managerial tasks facing the state, business and society related to the sustainable development of the Arctic region.

Research results and discussion

Today, the concept of sustainable development is an internationally recognized vector of social development, providing for a harmonious solution of a whole range of problems in the interests of current and future generations.

According to the Sustainable Development Report [2], Nordic countries demonstrate relatively high support for the SDGs, while the USA and the Russian Federation — the least support. Such conclusions were based on the calculation of the SDG Index for 2022 based on 169 indicators, grouped by economic (GDP growth, logistics efficiency index, R&D expenditures, government spending on education and healthcare, etc.), environmental (share of renewable energy sources in total primary energy supply, per capita volume of municipal solid waste, industrial emissions, ocean health index, etc.) and social (proportion of population living below the USD 1.90 per day poverty line, literacy rate, health services, life expectancy, unemployment rate, proportion of youth unemployed/uneducated, university rankings, etc.) functional areas.

According to the Report, the efforts of circumpolar countries in achieving the SDGs in the social functional area are moderate in the areas of fighting poverty (Finland, Denmark, Sweden, Norway, Iceland and Russia), ensuring quality education (Finland, Canada, Russia), reducing inequality (Denmark, Norway, Iceland). The main problems in achieving social sustainability in such countries remain the high level of poverty among older citizens (Finland, Sweden, Canada, USA); significant regional differences in life expectancy (Finland, Norway, Canada) and gaps in

[2] Sustainable Development Report 2022. From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond. URL: https://dashboards.sdgindex.org/ (accessed 02 May 2023).

health assessments by decile groups of the population (Finland, Sweden, Iceland); a high share of households with more than 40% of their disposable income spent on housing (Finland, Denmark, Sweden, Norway, Iceland, USA); limited access to the Internet for low-income groups (Denmark, Sweden, Norway, Canada, USA).

The Arctic territories of circumpolar countries play a critical role in achieving the SDGs, as they are strategically important for long-term sustainable development.

Arctic region: narratives of circumpolar countries

The Arctic zone of Finland includes Northern Ostrobothnia, Kainuu and Lapland with a population of 10.1% of the country's total population [27, pp. 433–434]. In the Finnish sector of the Arctic region, green economy projects are currently being implemented with an emphasis on bioeconomy and wind energy; the leading sectors of the Arctic economy are tourism, mining and wood processing [3]. Finland has large deposits of chromite, cobalt, copper, iron, lead, nickel, zinc, and limestone. The country is the leading producer of talc in Europe. The Finnish mining industry includes the extraction and processing of metallic and industrial minerals, as well as steel production [4]. The country's current Arctic policy strategy [5] is aimed at achieving the SDGs, identifying four priorities for activity in the Arctic: climate change, promoting the well-being and rights of indigenous people, welfare economics, infrastructure and logistics. The main directions of Arctic policy in achieving social sustainability: ensuring equal access to education and digital services, expanding opportunities for distance learning, employment and entrepreneurship.

Denmark's access to the Arctic region is Greenland, which "allows" the country to be classified as an Arctic state [27, pp. 431–432]. The population of Greenland is 56.4 thousand people. The country has significant reserves of zinc, lead, iron ore, gold, platinum, uranium, rare earth metals and coal. The main sectors of the Greenland economy are fishing, construction, tourism; Current activity in the mining industry is concentrated in the area of geological exploration. The autonomous Arctic region of Denmark is the Faroe Islands, the population of which is 53.6 thousand people; the main branch of the economy is fishing. Today, Greenland and the Faroe Islands independently determine their own internal policies and are engaged in dialogue with Denmark to determine the framework for work on the SDGs [6].

The Swedish sector of the Arctic region includes the counties of Västerbotten and Norrbotten with a population of 5.2% of the total population of the country. Sweden does not

[3] Pohjoisessa 178 miljardin euron investointipotentiaali — Pohjoisen rooli ilmastonmuutoksen ratkaisijana kasvaa. URL: https://www.lapland.chamber.fi/pohjoisessa-178-miljardin-euron-investointipotentiaali-pohjoisen-rooli-ilmastonmuutoksen-ratkaisijana-kasvaa/ (accessed 21 April 2023).

[4] Exploration & Mining in Finland, Sweden and Norway. URL: https://resourceworld.com/exploration-mining-in-finland-sweden-and-norway/ (accessed 07 April 2023).

[5] Finland Arctic Strategy 2021. URL: https://vnk.fi/en/arctic-issues/finland-s-strategy-for-arctic-policy (accessed 24 April 2023).

[6] Kortlægning af initiativer, udfordringer og potentialer for fremtidig implementering af FN's agenda 2030 i Grønland. URL: https://www.anguniakkavut.gl/nyheder/kortlaegning-af-verdensmaalene-for-baeredygtig-udvikling (accessed 25 April 2023).

have its own oil and gas resources, but Swedish industry plays an important role in industries serving the energy sector — icebreaker fleet, shipping and consulting services [7]. Today, Sweden accounts for about 93% of iron ore produced in Europe; the country is a leading producer of non-ferrous metals. In addition to metal mines, large-scale industrial mining is also carried out here. The leading industries in the Arctic territories of Sweden are wood processing and the pulp and paper industry, mining, tourism, construction, transport and storage, energy and fishing, and the growing bioenergy industry. Current Swedish Arctic policy emphasizes the need for sustainable economic development through the empowerment of local communities as equal partners in decision-making processes at the national and regional levels [8]. Among the main directions of implementation of Sweden's Arctic policy [9] in achieving social sustainability is the development of digital infrastructure in order to improve access to quality medical and social services in sparsely populated areas and the activation of youth policy based on expanding its opportunities for access to education, employment, housing, health, safety, culture and leisure [7, p. 139].

The Norwegian sector of the Arctic region (Nordland, Tromsø and Finnmark) accounts for 35% of mainland Norway and 9% of the country's population. Norway has huge reserves of oil, nickel, natural gas, iron ore, coal and titanium. The country ranks fifth in natural gas production and second in its exports in the world [10]. The leading sectors of Norway's Arctic economies are fishing and aquaculture, tourism, construction, trade; Growing industries include renewable energy, oil and gas, and minerals. The general direction of Norway's current policy in the Arctic is determined by the SDGs [11]. The goal of Norway's Arctic policy [12], as part of achieving social sustainability, is to promote job creation by promoting cooperation between the business community and the higher education sector.

Iceland is the only country fully included in the Arctic region, with a population of 356 thousand people. The main sectors of the country's economy are fishing, tourism and the aluminum industry. Iceland's objectives in the Arctic region were enshrined in the Parliamentary Resolution on Iceland's Arctic Policy 2011. The country is committed to implementing the 2030 Agenda for Sustainable Development. The country's SDGs are integrated into government policies

[7] Regionala utsikterhösten 2022. URL: https://arbetsformedlingen.se/statistik/analyser-och-prognoser/arbetsmarknadsprognoser/riket/arbetsmarknadsutsikterna-hosten-2022 (accessed 17 April 2023).
[8] Sweden's New Arctic Strategy: Change and Continuity in the Face of Rising Global Uncertainty. URL: https://www.thearcticinstitute.org/sweden-new-arctic-strategy-change-continuity-face-rising-global-uncertainty/ (accessed 17 April 2023).
[9] Sveriges strategi för den arktiska regionen 2020. URL: https://www.lapland.chamber.fi/pohjoisessa-178-miljardin-euron-investointipotentiaali-pohjoisen-rooli-ilmastonmuutoksen-ratkaisijana-kasvaa/ (accessed 21 April 2023).
[10] Exploration & Mining in Finland, Sweden and Norway. URL: https://resourceworld.com/exploration-mining-in-finland-sweden-and-norway/ (accessed 07 April 2023).
[11] The Norwegian Government's Arctic Policy. URL: https://www.regjeringen.no/en/dokumenter/arctic_policy/id2830120/ (accessed 14 April 2023).
[12] Mennesker, muligheter og norske interesser i nord. URL: https://www.regjeringen.no/no/dokumenter/meld.-st.-9-20202021/id2787429/ (accessed 21 April 2023).

on social, economic and environmental issues. The country's priorities include increasing the efficiency of resource use, as well as reducing the negative impact of cities on the environment [13].

The Canadian sector of the Arctic region entirely includes the provinces of Yukon, Northwest Territories and Nunavut. The Arctic territories account for 0.4% of Canada's total population. The main economic activities of the Canadian sector of the Arctic region are mining (diamonds, gold, silver, lead, zinc), the public sector and the service sector. The development of Arctic territories is one of the key priorities of Canada's strategic planning, the legal basis of which today is the Arctic and Northern Policy Framework [14]. The goals and objectives of Canada's Arctic policy are aligned with the goals of the 2030 Agenda for Sustainable Development. In the area of achieving social sustainability, they include ensuring the resilience of Indigenous people by addressing poverty and homelessness and expanding opportunities for lifelong learning.

The American sector of the Arctic region is Alaska, the share of its population in the total population of the country is 0.2%. The state has historically not played an important role in US foreign and domestic policy: despite the fact that Alaska, thanks to its oil reserves, is an important resource for ensuring American energy security, it is only in the last two decades that the state has actualized its importance in Washington's economic and military agenda [15]. The 2022 Arctic Strategy [16] defines the current prospects for economic development of the American sector of the Arctic region. The goals of implementing such a Strategy are investments in infrastructure; expanding access to public services, including health, education, energy, housing, water and sanitation; development of new economic sectors (renewable energy, extraction of critical minerals, tourism and the knowledge economy).

The Russian sector of the Arctic region includes the Murmansk Oblast, Nenets, Yamalo-Nenets and Chukotka autonomous okrugs. The economy of the Russian sector of the Arctic region is dominated by the oil and gas complex and the extraction and processing of minerals. Accelerated socio-economic development of the Arctic territories is the main vector of Russia's modern Arctic policy [17]. The directions for implementing such a policy are the social and economic development of the Russian Arctic and the development of its infrastructure, the development of science and technology, environmental protection and ensuring environmental safety, ensuring the protection of the population and territories from natural and man-made emergencies. Measures to solve the problems of socio-economic development of the Russian sector of the

[13] Voluntary National Review 2019. URL: https://sustainabledevelopment.un.org/memberstates/iceland (accessed 14 April 2023).
[14] Arctic and Northern Policy Framework. URL: https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587 (accessed 18 April 2023).
[15] Arctic narratives and political values: Arctic States, China and NATO. URL: https://stratcomcoe.org/cuploads/pfiles/nato_arctic_study_2020_18-06-2020-2.pdf (accessed 29 April 2023).
[16] The United States' National Strategy for the Arctic Region 2022. URL: https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf (accessed 18 April 2023).
[17] Osnovy gosudarstvennoy politiki RF v Arktike na period do 2035 goda [Fundamentals of the state policy of the Russian Federation in the Arctic for the period until 2035]. URL: http://www.scrf.gov.ru/security/economic/Arctic2035/ (accessed 18 April 2023).

Arctic region were enshrined in the Strategy for Developing the Russian Arctic Zone and Ensuring National Security until 2035 [18] and, in contrast to the Arctic strategies of the countries discussed above, the expected results of the implementation of such a policy are given.

Social risks posing threats to the sustainable development of the Arctic region

In general, the analysis of circumpolar countries' narratives in the Arctic region has shown that social goals in national documents are declarative in nature (Arctic strategies lack specific tasks, measures, deadlines and indicators for achieving such goals), preference is given to economic activity. This statement is confirmed by the results of the analysis of the social development of the Arctic territories in the framework of achieving the SDGs.

SDG "Ensuring quality education and lifelong learning opportunities". A significant contribution to the well-being of local communities is made by education, the level, accessibility and quality of which affect the economic potential of the entire society, the social status of a person, the quality and standard of his life. Today, the main threat to providing quality education in local communities of the Arctic region is limited access to educational services.

Alaska faces significant challenges in providing effective education [19] — teacher shortages (more than 60% of teachers are hired from other states) and high turnover rates (almost one in four teachers leaves the jobs each year), resulting in low student achievement and a declining quality of the workforce in the long term. The reasons for this situation include low affordability of housing and the limited level of its improvement (water supply and sewerage), limited transport accessibility of remote settlements, low level of living comfort (limited network of shops, cultural institutions and leisure activities), cultural differences in Alaska (given its large indigenous population). The situation is aggravated by the poor quality of education of University of Alaska Anchorage (UAA) graduates: in 2019, the institution was decertified due to failure to meet the standards for educational preparation (CAEP), as a result of which students who received a diploma in education were ineligible for obtaining a teaching license in Alaska schools. The same situation is typical for the Arctic province of Canada — Nunavut.

In Norway, one in ten students drops out before or during their final year of upper secondary school. In Finnmark, every fifth boy and every sixth girl stops studying in upper secondary school. In Nordland, 16.3% of boys and 12.4% of girls do not complete the second stage of secondary education, in Tromsø — 15.4% and 10.6%, respectively. This situation aggravates the problems of youth unemployment [20]: in 2020, the unemployment rate among young people

[18] O strategii razvitiya AZRF i obespecheniya natsional'noy bezopasnosti na period do 2035 g. [On the strategy for developing the Russian Arctic Zone and ensuring national security until 2035]. URL: http://www.kremlin.ru/acts/bank/45972 (accessed 18 April 2023).
[19] Teacher Turnover in Alaska: Causes and Solutions. URL: https://alaskapolicyforum.org/2021/09/teacher-turnover-in-alaska-causes-and-solutions/ (accessed 18 April 2023).
[20] Business Index North — A periodic report with insight to business activity and opportunities in the Arctic. URL: https://businessindexnorth.com/sites/b/businessindexnorth.com/files/BIN2022_290x220-LQ_1.pdf (accessed 04 May 2023).

without complete secondary education was almost 2 times higher than the unemployment rate among youth with a higher level of education.

SDG "Promoting full and productive employment". Achieving sustainable development of the Arctic region is impossible without ensuring full and productive employment. An analysis of the social development of Arctic local communities in circumpolar countries shows that social risks that create threats to sustainable development are professional and qualification imbalances in the Arctic labor markets and youth unemployment.

In 2022, the Norwegian Arctic region has the lowest unemployment rate: in Nordland — 2.3%, in Tromsø and Finnmark — 2.4% (compared to 4.6% in Oslo County and 2.4% on average in the country) [21]. The level of social tension in the labor market of Nordland and Tromsø and Finnmark is 0.6 people per 1 vacancy (in Oslo — 1.3). Despite this favorable situation, the problem of the imbalance between corporate needs and the supply of qualified labor remains particularly pressing for the Arctic territories of Norway. Thus, Nordland has the highest proportion of companies with serious hiring problems among other regions of Norway. The greatest labor shortages here are in the health and social services sectors; construction, fishing, tourism and catering are among the industries experiencing acute labor shortages [22].

The shortage of skilled labor is a critical problem in Finland's Arctic region of Kainuu [23]. Today, Kainuu's population is insufficient to meet labor needs: with a declining population due to high mortality and low birth rates, the region faces the problem of outmigration of young people due to the narrow range of vocational training opportunities. The greatest demand in the Kainuu labor market is for specialists in information and communication technologies, as well as qualified personnel in the field of health and social services.

Alaska will also face a crisis in the near future due to the lack of labor resources necessary for enterprises and industries. Negative demographic trends in the state include a reduction in the working-age population and a high proportion of young people in the migration decline.

The situation is similar in the Russian sector of the Arctic region, where the unemployment rate among graduates of secondary vocational and higher education is high [24]. Thus, in the Chukotka Autonomous Okrug [25], the employment rate among university graduates is 69.2%, while the Russian average is 83.7%; unemployment rate — 13.5% (7.1%). The Okrug's employers have a significant need for specialists of the highest qualification level (in the fields of science and

[21] Befolkning — Forventet levealder. URL: https://www.nfk.no/tjenester/planer-og-planlegging/statistikk-og-kart/nordland-i-tall/befolkning/befolkning-forventet-levealder.53964.aspx (accessed 18 April 2023).
[22] Virksomheter i Nordland sliter mest med å få tak i arbeidskraft. URL: https://www.nav.no/no/lokalt/nordland/pressemeldinger/virksomheter-i-nordland-sliter-mest-med-a-fa-tak-i-arbeidskraft (accessed 18 April 2023).
[23] Kainuun maakuntaohjelman toimeenpanosuunnitelma. URL: https://kainuunliitto.fi/assets/uploads/2022/05/TOPSU-2022-2023-12.5.2022.pdf (accessed 22 April 2023).
[24] Results of selective observation of employment of graduates who received secondary vocational and higher education. URL: https://gks.ru/free_doc/new_site/population/trud/itog_trudoustr/index.html (accessed 21 April 2023).
[25] Regional differences in the employment performance of university graduates. URL: https://www.hse.ru/data/2021/01/18/1348766917/release_2_2021.pdf (accessed 21 April 2023).

technology, education, healthcare), as well as skilled workers in industry, construction and transport [26]. Young people have an unfavorable position in the labor market of the Russian Arctic regions. One of the reasons for this situation is the low level of employment for the first job related to the profession or specialty acquired. One example is the Nenets Autonomous Okrug [27], where the employment rate of graduates in their specialty is less than 60%, including those with secondary vocational education in training programs for mid-level specialists — 58%, in training programs for skilled workers and employees — 55.2%.

The problems of employment of the indigenous population are relevant for the Arctic region, the labor demand for which consists of unskilled jobs in peripheral sectors of the economy and seasonal jobs. One of the reasons for this situation is limited opportunities for obtaining education due to the remoteness of the places of life of the indigenous population from educational institutions. For example, in the Arctic territories of Canada, the unemployment rate among the indigenous population is 1.5 times higher than the general unemployment rate.

SDG "Fighting against poverty". Problems of unemployment negatively affect the well-being of the population: problems of poverty remain relevant for the Arctic region. Poverty reduces the level and quality of life by limiting access to services and consumption and causes social exclusion. As a result, socially vulnerable groups of the population of the Arctic territories of circumpolar countries face higher rates of poverty (indigenous population, people with disabilities, single parents).

Social risks that pose threats to the sustainable development of the Arctic region are child poverty and poverty of the indigenous population.

In Alaska [28], the poverty rate is 10.1% (10.8% among working-age women and 8.4% among men); the poverty rate among older citizens is 8.5% [29]; the poverty rate of the indigenous population is 22.9%. The state's child poverty rate is 12.6%; many families experience food insecurity (9.5% of households are food insecure; 20% of the region's children are members of such households).

In Canada, the highest level of child poverty is in Nunavut — 31.2% (the national average is 18.6% [30]). The reasons for this situation are complex and varied [31]: high cost of living, limited job opportunities (Nunavut's economy is small and isolated), lack of affordable housing, limited access

[26] The situation on the labor market of the Chukotka Autonomous Okrug. URL: https://trud87.ru/content/экспресс_информация_о_положении_на_рынке_труда (accessed 21 April 2023).
[27] Results of selective observation of employment of graduates who received secondary vocational and higher education. URL: https://gks.ru/free_doc/new_site/population/trud/itog_trudoustr/index.html (accessed 21 April 2023).
[28] 2020
[29] Poverty rate. URL: https://talkpoverty.org/state-year-report/alaska-2020-report/index.html (accessed 23 March 2023).
[30] Nunavut children experience the highest poverty rate in Canada: report. URL: https://nunatsiaq.com/stories/article/nunavut-children-experience-the-highest-poverty-rate-in-canada-report/ (accessed 04 May 2023).
[31] Poverty in Nunavut: Understanding and Combating It. URL: https://www.makiliqta.ca/#:~:text=In%20Canada%2C%20poverty%20is%20measured,Nunavut%2C%20it%20was%2029.1%25 (accessed 04 April 2023).

to education and training. Poverty in Nunavut disproportionately affects Indigenous communities, with poverty rates among Inuit reaching 62% (non-Indigenous people — 29%).

The Russian sector of the Arctic region has a paradoxical poverty situation. With a population of only 0.94% of the total population of Russia, the share of GRP produced here in the total product of the country is 4.6%, the average volume of GRP per capita exceeds the national average by 5 times. Despite this, more than 8% of the population of the Arctic regions lives below the poverty line; in almost 20% of households, the share of expenses for purchasing food exceeds 50%; about 80% of low-income households are families with children under 16 years of age [28, pp. 57–61]. According to the authors' estimates [32], the level of child poverty in the Yamalo-Nenets Autonomous Okrug is 12.7%, in the Nenets Autonomous Okrug — 17.5%, in the Chukotka Autonomous Okrug — 19%, in the Murmansk Oblast — 21%. The factors of this situation are unfavorable demographic pressure, low-paid employment and unemployment.

In the circumpolar debates, social issues related to children are often forgotten, while child poverty is a phenomenon the presence of which is shameful for the state. Poverty has a negative impact on the prospects for sustainable development of the Arctic region, since it reproduces the phenomenon of child poverty: as the number of children increases, the standard of living decreases by 30% among full families with two children, and by 50% among families with three or more children [28, pp. 60–62]. Child poverty limits the prospects for achieving sustainable development in the Arctic region, as it is accompanied by worsening long-term negative trends — declining health and educational levels, rising unemployment, rising crime and social tension in Arctic local communities.

The indigenous peoples of the North are the category of population most vulnerable to the negative effects of climate in the Arctic; at the same time, industrial seizure of land and restrictions on the use of biological resources increase risks to health and livelihoods and threaten the existence of national cultures. Conflicts with resource-extracting companies (development of mineral deposits that affect an important area of the life of the indigenous population — lands, pastures, biological resources) remain relevant. The traditional economy is stagnating, and the anthropogenic impact on ecosystems reduces the ability to conduct traditional activities, while the level of education and cultural characteristics of the indigenous population limit their opportunities for socialization outside the traditional living environment [29, p. 41].

Conclusion

The analysis of social risks of achieving sustainable development of the Arctic region has shown that de facto, the Arctic strategies of the circumpolar countries emphasize the economic goals of the development of the Arctic territories, while social goals are subordinated to them — the human factor is considered as a tool for the accelerated development of the Arctic territories.

[32] Certificate of state registration of the database No. 20226219815 "Integral index of the quality of labor potential of the regions of the North and Arctic of Russia, 2005-2019" from July 22, 2022.

Circumpolar countries are failing to achieve social sustainability that is relevant for the Arctic territories: the current stage of development of the Arctic territories is accompanied by a huge amount of investment; however, the exploitation of Arctic resources gives practically nothing in return to Arctic local communities. Social risks of achieving sustainable development of the Arctic region include limited access of the population of local communities to educational services, social tension in labor markets produced by professional and qualification imbalances in labor supply and demand, limited employment opportunities for the indigenous population and youth, as well as child and indigenous poverty.

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Assessment of Industrial Gas Content in the Yamal and Gydan Oil and Gas Bearing Areas

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Abstract. In accordance with the strategic planning documents of the Russian gas industry, the development of the Yamal and Gydan oil and gas bearing regions is one of the priority tasks, as they are associated with the formation of a strategic reserve of gas resources and the creation of new gas production centers. The article analyses the spatial distribution of natural gas reserves in the oil and gas bearing areas of the Arctic region and concludes that the distribution of free gas resources is uneven both by section and by area. Some oil and gas bearing areas are characterized by a weak degree of geological and geophysical study. Depletion of the base fields in the Pur-Taz and Nadym-Pur oil and gas bearing areas raises the question of shifting the raw material base of the gas industry to the hard-to-reach areas of Yamal and Gydan, including the waters of the Kara Sea, the Ob, Taz and Gydan Bays. The paper provides a quantitative assessment of the level of commercial gas content of the Yamal and Gydan oil and gas bearing areas, including in the context of oil and gas bearing regions. It was determined that based on the technology of field development, processing and transportation scheme when assessing the prospects of development and options for monetization of gas resources, a zone of pipeline transport and a zone of liquefied natural gas are distinguished. Taking into account the current economic conjuncture of Arctic natural gas reserves development, it is reasonable and promising at this point in time to expand the resource base by developing satellite fields in Yamal and Gydan oil and gas bearing regions, which already have developed production, processing, transport and social infrastructure, as well as through additional exploration of discovered and developed fields and deposits.

Keywords: *Yamal oil and gas bearing region, Gydan oil and gas bearing region, natural gas reserves, industrial gas content, monetization of natural gas, pipeline natural gas, liquefied natural gas*

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Introduction

In accordance with the strategic planning documents defining the strategic development of the oil and gas industry, the main parameters of the industry's sustainable development have

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been defined, including the expansion and rational use of the hydrocarbon resource base. Under unfavorable conditions and considering the external sanctions pressure on the fuel and energy sector of Russia, it is necessary to revise the model of sustainable development of the oil and gas industry. In this situation, there is a risk of lack of chronological and spatial synchronization of prospecting and exploration work, commissioning of a complex of capacities in the production and development of fields, transportation, storage, processing of natural gas and its valuable components.

Scientists and practitioners have been studying the geological structure of productive deposits of gas fields in the Arctic zone of the West Siberian oil and gas province (WSOGP), improving geophysical methods for exploration of oil and gas resources, and the problems of their safe development [1, Kontorovich V.A., Kontorovich A.E.], [2, Ananenkov A.G., Mastepanov A.M.], [3, Laverov N.P., Bogoyavlenskiy V.I., Bogoyavlenskiy I.V.], [4, Skorobogatov V.A., Kabalin M. Yu.], [5, Lokhov A.S., Gubaidullin M.G., Korobov V.B., Tutygin A.G.], [6, Rakhmangulov R.R., Yusupov R.R., Rasskazov A. A.] and others.

Problems of spatial organization of the development of hydrocarbon resources in the Arctic zone of the Russian Federation (AZRF), analysis of the economic feasibility of implementing oil and gas projects, assessment of an effective scheme for transporting oil and gas resources from Arctic fields are the subject area of research in [7, Kozmenko S., Teslya A., Fedoseev S.], [8, Fadeev A.M., Cherepovitsyn A.E., Larichkin F.D.], etc.

The vector of strategic development of the gas industry is defined in the following documents: Energy Strategy of the Russian Federation until 2035 (2020) [1], which defines the priorities and targets of the state energy policy; Strategy for the development of the mineral resource base (MRB) until 2035 (2018) [2], which determines the directions for the development of geological exploration with the aim of sustainable provision of industry with mineral raw materials; Long-term LNG development program (2021) [3], which describes in detail the scenario and stages of development of the LNG industry in the Russian Federation; the General Scheme for the development of the gas industry until 2035 (2021), which provides details and elaboration of forecasts and directions for the development of the gas industry in order to ensure reliable gas supply, defines target guidelines for the strategic development of the industry, etc.

[1] Energeticheskaya strategiya Rossiyskoy Federatsii na period do 2035 goda. Utverzhdena Rasporyazheniem Pravitel'stva № 1523-r ot 09.06.2020 [Energy strategy of the Russian Federation for the period until 2035. Approved by Government Order No. 1523-r dated June 09, 2020]. URL: http://static.government.ru/media/files/w4sigFOiDjGVDYT4IgsApssm6mZRb7wx.pdf (accessed 21 February 2023).

[2] Strategiya razvitiya mineral'no-syr'evoy bazy Rossiyskoy Federatsii do 2035 g. Utverzhdena Rasporyazheniem Pravitel'stva № 2914-r ot 22.12.2018 [Strategy for the development of the mineral resource base of the Russian Federation until 2035. Approved by Government Order No. 2914-r dated December 22, 2018]. URL: http://static.government.ru/media/files/WXRSEBj6jnRWNrumRkDakLcqfAzY14VE.pdf (accessed 21 February 2023).

[3] Dolgosrochnaya programma razvitiya proizvodstva szhizhennogo prirodnogo gaza v Rossiyskoy Federatsii. Utverzhdena Rasporyazheniem Pravitel'stva № 640-r ot 16.03.2021 [Long-term program for the development of liquefied natural gas production in the Russian Federation. Approved by Government Order No. 640-r dated March 16, 2021]. URL: http://static.government.ru/media/files/l6DePkb3cDKTgzxbb6sdFc2npEPAd7SE.pdf (accessed 21 February 2023).

A significant, but not fully resolved problem in scientific research is the assessment of the industrial gas content of strategically important oil and gas regions from the perspective of spatial organization and directions of monetization of gas resources.

Research in the field of spatial organization of development and monetization of gas resources of deposits in the Arctic region is timely and relevant, since the energy development of the Yamal and Gydan oil and gas bearing areas (OGA) is highlighted as a priority in strategic documents defining the development scheme of the Russian gas industry in the future until 2035; these OGAs are associated with increasing the country's gas potential.

The purpose of the study is to solve the scientific problem of assessing the level of industrial gas content of the Yamal and Gydan oil and gas fields, to study the spatial organization of the development and monetization of gas resources.

The factual and practical basis of the study is provided by data from the state balance of mineral reserves, official data from gas industry companies, industry strategic planning documents, the results of our own research, etc. During the study, comparative analytical methods were used to interpret geological and geophysical materials, collection and systematization of factual data, statistical methods of economic analysis.

Spatial distribution of natural gas reserves in the West Siberian oil and gas bearing province of the AZRF

According to experts, "the volume of recoverable hydrocarbon reserves in the Arctic fields of Russia is 245 billion tons of standard fuel" [9, Kontorovich V.A.], while about 66% falls on the WSOGP, the northwestern part of which is predominantly gas-bearing with high concentrations Aptian-Albian-Cenomanian deposits. The level of natural gas production in the Arctic regions of the WSOGP is currently at peak level. However, in order to achieve the planned strategic indicators, according to the General Scheme for the development of the oil and gas industry until 2035 (2021), it is necessary to compensate for the falling production of natural gas. The General Scheme's planned indicators assume a level of natural gas production ranging from 838.3 billion m^3 to 1048 billion m^3 per year, depending on the scenario — low, medium and high, which are developed on the basis of the availability of potential industrial capacities of the oil and gas sector.

Table 1 presents an analysis of the spatial distribution of natural gas reserves in the Arctic region of the WSOGP.

Table 1

Spatial distribution of natural gas reserves in the Arctic region of the WSOGP [4]

Oil and gas bearing areas of the Arctic part of the WSOGP	Location of the oil and gas region	Area of responsibility	Degree of development / Prospects	Volume of recoverable reserves, billion m^3
Sverdrupskaya POGA	Kara Sea shelf	PJSC Rosneft	Based on the results of exploration and appraisal drilling,	>1 300
Prednovozemelskaya OGA		PJSC Rosneft		>500

[4] Source: compiled by the author.

South Kara OGA		PJSC Gazprom	commercial oil and gas potential was proven, eight OGCFs were discovered on the shelf within the limits of OGA / High production costs, lack of necessary infrastructure and production technologies	>2 600
Yamal OGA	Extreme northwest of WSOGP. Yamal Peninsula, water area of the Ob and Baydaratskaya bays	PJSC Gazprom PJSC NOVATEK	Degree of exploration – 70% / Resource strategic base of Yamal projects; Resource base of the complex for processing ethane-containing gas (CPEG) in Ust-Luga; Kamennomyssk Sea using IRP – PJSC Gazprom. Resource strategic base of the Yamal LNG Project, as well as the planned projects: Arctic LNG 2, 3, Ob GCC and LNG – PJSC NOVATEK	>16 000
Gydan OGA	Northern part of the WSOGP. Gydan Peninsula, water area of the Ob, Yuratsk, Gydan and Taz bays	PJSC Gazprom PJSC NOVATEK PJSC Rosneft	Degree of exploration – 22% / Development of the Severo-Kamennomyskoe gas condensate field is underway – PJSC Gazprom, Semakovskoe GF – LLC RusGazAlliance. Resource strategic base of the Arctic LNG 1 project – PJSC NOVATEK	>2 200
Nadym-Pur-Taz region	Nadym-Purskaya OGA – northeastern part of the WSOGP Pur-Tazovskaya OGA – east of the central part of the WSOGP	PJSC Gazprom PJSC NOVATEK PJSC Rosneft PJSC Lukoil	70% of Russia's natural gas is extracted / declining production, >75% of capacity. Development of projects for HTR extraction	initial reserves: 32 000
Yenisei-Khatanga OGA, AZRF part	Extreme northeast of the WSOGP, the waters of the Gydan Bay and the Yenisei Bay	PJSC NOVATEK PJSC Rosneft LLC Ermak Neftegaz	GPW is non-systematic, degree of exploration is <10% / GPW is underway to prepare the Vostok-Oil resource base (oil and LNG production) – PJSC Rosneft	450

An assessment of the spatial distribution of natural gas reserves in the Arctic region of the WSOGP showed that despite the fact that the industrial development of Arctic natural gas deposits has been going on for more than 50 years, some OGAs are characterized by a poor degree of geological and geophysical knowledge.

The gas content of the Yamal and Gydan OGAs was identified as early as in the 1950s with the beginning of geological prospecting work (GPW). The actual implementation of geological exploration in Yamal began in the late 1950s, on the Gydan Peninsula — in the early 1970s. The first field of the Yamal OGA was discovered in 1964 — the Novoportovskoe oil and gas condensate field (OGCF), which is currently the largest in Yamal. In the area of the Gydan OGA, the first field was discovered on the coast of the Ob Bay in 1975 — the Geofizicheskoe OGCF, in 1978 — the Gydanskoe GF and Antipayutinskoe GF. In 1979, in the northern part of the Gydan Peninsula, with a partial location in the waters of the Ob Bay, the Salmanovskoe (Utrennee) OGCF was discovered, which belongs to the category of large ones (since 2012, in accordance with the zoning of oil and gas geological territories, the Salmanovskoe OGCF and the Shtormovoe GF are classified as Yamal OGA).

Industrial gas content of the Yamal oil and gas production area

Within the Yamal OGA, including the adjacent water area, 33 fields with total free gas reserves of over 16 trillion m^3 have been discovered; the volume of promising and predicted resources, according to various estimates, is in the range of 7–10 trillion m^3 [10, Lyugai D.V., Soin D.A., Skorobogatko A.N.]. Table 2 presents information on the state of free gas reserves and resources of the Yamal OGA in the context of oil and gas bearing regions (OGR), as well as the adjacent water area, based on the data of the State Balance Sheet, the Ministry of Natural Resources and the Federal State Budgetary Institution “Rosgeolfond”. A detailed assessment of the gas resources of the Yamal OGA is presented in the author’s previous works.

Table 2

Assessment of free gas reserves and resources of the Yamal OGA [5]

Oil and gas bearing region, Field	Free gas, billion m^3		
	Reserves		Resources
	$A+B_1+C_1$	B_2+C_2	D_1+D_2
Malyginskiy OGR Malyginskoe GCF, Shtormovoe GF (onshore/offshore), Syadorskoe GF, Severo-Obskoe GCF (offshore)	812.0	305.6	2 665.3
Tambeyskiy OGR Yuzhno-Tambeyskoe GCF (onshore/shelf), Severo-Tambeyskoe GCF, Tasiyskoe GCF, Zapadno-Tambeyskoe OGCF, Salmanovskoe (Utrennee) OGCF (onshore/shelf)	4 044.3	743.2	558.6
Nurminskiy OGR Bovanenkovskoye OGCF, Kharasaveyskoe GCF (onshore/shelf), Kruzenshternskoe GCF (onshore/shelf), Yuzhno-Kruzenshternskoe GF, Severo-Bovanenkovskoe GF, Vostochno-Bovanenkovskoe GF, Arktikskoe OGCF, Verkhnetiuteyskoe GF, Zapadno-Seyakhinskoe GCF, Neutinskoe OGCF, Nurminskoe OGCF, Sredneyamalskoe OGCF, Khambateyskoe GCF.	7 747.4	1 394.9	1 155.0

[5] Source: compiled by the author.

South Yamal OGR (onshore) Novoportovskoe OGCF, Kamennomysskoe GF (onshore), Malo-Yamalskoe GCF, Rostovtsevskoe OGCF, Ust-Yuribeyskoe GF, Blizhnenovoportovskoe GF, Baidaratskoe GCF, Nerstinskoe GF	498.7	173.5	897.6
Yuzhno-Yamalsky OGR (water area) Kamennomysskoe GF (shelf), Kamennomysskoe GF – sea, Obskoe GF	561.0	-	1 836.6
Total for Yamal OGA	13 663.4	2 617.2	7 113.1

As the analysis of Table 2 shows, commercial gas content has been established in all oil and gas bearing areas of the Yamal OGA, except for the potential Shchuchinskiy OGR (POGR), which is also a part of the Yamal OGA. Within the Yamal OGA, the most promising are the Tambeyskiy and Nurminskiy OGRs, they account for 85% of proven natural gas reserves, while in recent years the volumes of recoverable reserves have been revised upward for the Tambeyskoe group of fields, as well as the Kharasaveyskoe and Kruzenshternovskoe fields. Two major gas accumulation centres — the Bovanenkovo and Tambay clusters — were formed in these fields.

Natural gas exploration in the South Yamal OGR is uneven. The South Yamal OGR is considered to be predominantly oil-bearing. In 1964, the Novoportovskoe OGCF was discovered, which is the largest on the Yamal Peninsula with recoverable oil and condensate reserves of more than 250 million tons, natural gas — 320 billion m^3. Among the regions of the Yamal OGA, the share of proven reserves and predicted resources of natural gas in the territory of the South Yamal OGR does not exceed 7% of the total volume, in contrast to the water area of this OGR, where LLC Gazprom Dobycha Yamburg is developing the Kamennomysskoe-Sea GF, discovered in 2000 and classified as unique with proven reserves of 555 billion m^3.

The Malyginsky OGR is the least explored, the degree of exploration does not exceed 30%; geological and geophysical exploration of Neocomian and Jurassic deposits is being actively carried out here. In addition, in 2018, in the North Ob subsoil area in the northern part of the Gulf of Ob, LLC Arctic LNG-3 opened a new gas field, classified as a large field with proven reserves of over 320 billion m^3.

The previously conducted analysis by type of deposits allows us to assess the nature and degree of prospects for the industrial development of a given oil and gas deposit. According to experts, the key dominant complex in Yamal is the Albian-Cenomanian and Aptian. “Natural gas, concentrated in the Aptian-Albian-Cenomanian formations, lies at a depth of 700–1500 meters. This is dry (energy) natural gas” [11, Shchegolkova A.A.], its composition is dominated by methane hydrocarbons. The main feature is that natural gas from these formations is used without preliminary processing.

Figure 1 shows the nature of the productivity of the Yamal OGA by fields of the distributed fund (Fig. 1).

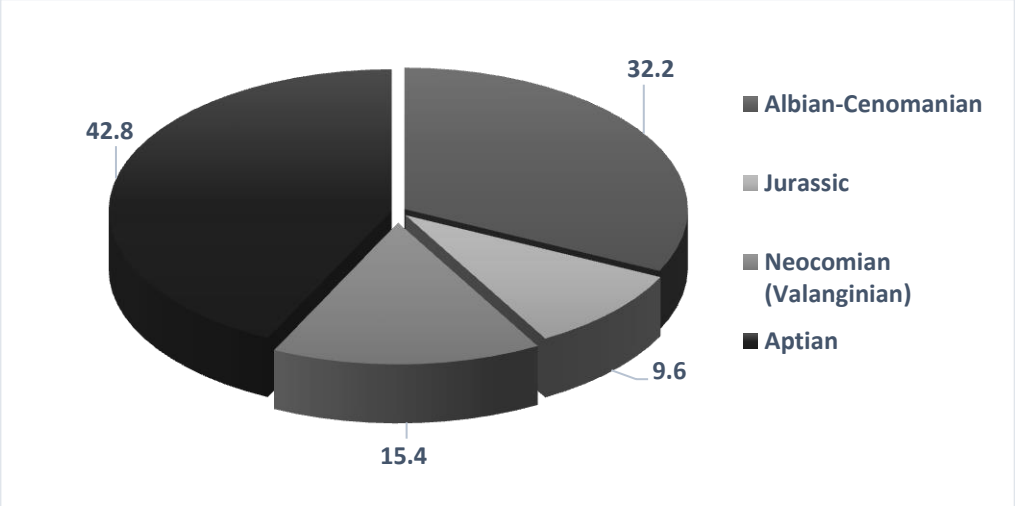

Fig. 1. Natural gas deposits of the Yamal OGA (compiled by the author).

The largest accumulations in the Aptian-Albian-Cenomanian strata were identified in the Tambeyskoe and Nurminskoe OGRs. As for promising and prospective resources, according to experts, most (over 50%) of natural gas is concentrated in Jurassic and pre-Jurassic deposits. According to specialists from Gazprom, the resources of Jurassic deposits in the northwestern part of the WSOGP amount to 10–40 billion tons of fuel equivalent. In Jurassic formations, natural gas is at a depth of 3400–4000 m "... in the zone of anomalously high formation pressure" [9, Kontorovich V.A.]. In addition to high capital costs, drilling of such wells involves the development of a unique set of modern engineering and geological surveys and technological solutions.

Industrial gas content of the Gydan oil and gas production area

The Gydan OGA is an area of predominant gas accumulation. Large-scale development of these territories began at the beginning of the 21st century. Within the Gydan OGA, including the adjacent waters of the Ob and Taz bays, 16 fields with total free gas reserves of 2234.0 billion m^3 have been discovered; the volume of promising and predicted resources is about 8 trillion m^3. Table 3 presents information on the status of free gas reserves and resources in the Gydan OGA in terms of oil and gas bearing regions (OGR) based on the data of the State Balance Sheet, the Ministry of Natural Resources and the Federal State Budgetary Institution "Rosgeolfond".

Table 3

Assessment of free gas reserves and resources of the Gydan OGA [6]

Oil and gas bearing region, Field	Free gas, billion m^3		Degree of development	Subsoil user
	Reserves ABC_1+C_2	Resources $D_0+D_{1л}+D_2$		
Severo-Gydanskiy POGR				
Exploration drilling is underway in Severo-Gydanskiy POGR	-	1 244.3	prospect.	LLC Arctic LNG 1
Total for Severo-Gydanskiy POGR	-	*1 244.3*		
Gydanskiy OGR				

[6] Source: compiled by the author.

Gydanskoe GF	116.1	528.6	prospect.	LLC Arctic LNG 1
Total for Gydanskoe GF	*116.1*	*528.6*		
Napalkovskiy OGR				
Geofizicheskoe OGCF (onshore/shelf)	413.0	100.0	prospect.	LLC Arctic LNG 1
Soletsko-Khanaveyskoe GCF	154.7	2 028.3	prospect.	LLC Arctic LNG 1
Trekhbugornoe GF	6.0	1 027.0	prospect.	LLC Arctic LNG 1
Vostochno-Bugornoe GCF	<10	n/d	prospect.	LLC Arctic LNG 1
Im. V.I. Giri GCF (including the entire Bukharinskiy sector)	52.0	1 190.0	prospect.	LLC Arctic LNG 1
Total for Napalkovskiy OGR	*631.7*	*4 345.3*		
Messovskiy OGR				
Vostochno-Minkhovskoe GF Minkhovskoe GF	210.0	330.0	prospect.	PJSC Rosneft
Tota-Yakhinskoe GF (on-shore/shelf)	1.6	426.4	prospect.	PJSC Gazprom
Semakovskoe GF (onshore/shelf)	320.5	30	develop.	LLC RusGazAlliance (JV of PJSC Gazprom and JSC RusGazDobycha)
Parusovoe OGCF Severo-Parusovoe OGCF Yuzhno-Parusovoe OGCF	>100.0	208.7	prospect.	LLC RusGazAlliance (JV of PJSC Gazprom and JSC RusGazDobycha) D/SRM for the North-Western Federal District, on the continental shelf and in the world ocean
Severo-Kamennomysskoe GCF (shelf)	432.0	-	develop.	LLC Gazprom Dobycha Yamburg
Antipayutinskoe GF (onshore/shelf)	340.4	800.0	prospect.	PJSC Gazprom
Chugoryakhinskoe GCF (shelf)	81.7	-	prospect.	LLC Gazprom Dobycha Yamburg
Total for Messovskiy OGR	*1 486.2*	*1 795.1*		
Total for Gydanskiy OGA	*2 234.0*	*7 913.3*		

The Gydan OGA belongs to the category of the least studied WSOGP; its development has been repeatedly postponed due to the high degree of inaccessibility [12, Kontorovich A.E.], "complete absence of industrial and social infrastructure" [11, Shchegolkova A.A.], as well as the environmental component, which is expressed in the weak susceptibility of the environment to technogenic loads, which can lead to a long period of its self-recovery [13, Agarkov S.A., Saveliev A.N., Kozmenko S.Y., Ulchenko M.V., Shchegolkova A.A.]. The problem is aggravated by complex natural and climatic conditions — the presence of perennial frozen rocks [7], the spread of permafrost, saline and heaving soils, thermokarst and thermo-erosion processes, a high degree of swamping, thick layers of underground monolithic ice in the lowlands, which reach 300–400 meters [14, Kokko K.T., Buanes A., Koivurova T., Masloboev V., Pettersson M.].

The industrial gas content of the Gydan OGA has been established in three OGRs: Gydanskiy, Napalkovskiy and Messovskiy. The highest degree of exploration was recorded in the south-

[7] Larina S.I. Atlas Yamalo-Nenetskogo avtonomnogo okruga [karty] [Atlas of the Yamalo-Nenets Autonomous Okrug [maps]]. Omsk, Omsk Cartographic Factory, 2004. 304 p.

ern part of the Gydan Peninsula, as well as the waters of the Ob, Gydan and Taz Bays — the exploration coefficient reaches 0.45.

The overwhelming majority of industrial natural gas deposits of the Gydan OGA are concentrated in the Aptian-Albian-Cenomanian formations, as well as Neocomian (Valanginian) deposits. Unlike the Yamal, natural gas reserves in the Cenomanian reservoir of the Gydan OGA are not so significant. The best potential, according to expert estimates, is found in the Aptian reservoirs, which contain significant reserves of natural gas [15, Toropova T.N. Kontorovich V.A.], [16, Kontorovich V.A., Toropova T.N., Shcherbanenko V.M.]. The prospects for the gas content of the Gydan OGA are associated with the reservoir deposits of the Jurassic oil and gas complex.

Zonal development of natural gas resources of the Yamal and Gydan OGAs

The implementation of the strategic objectives of the gas industry in the Yamal and Gydan OGAs, enshrined in the General Scheme for the development of the gas industry and the Long-term LNG development program in the Russian Federation, allows us to distinguish two zones for the development of natural gas resources, based on options for their monetization:

1. Pipeline transport zone. It is the area of responsibility of PJSC Gazprom, JSC RusGazDobycha and their joint venture. It is represented in the Yamal OGA by the northwestern and southeastern coasts, as well as the southern part of Yamal; in the Gydan OGA — by the northern part of the Tazovskiy Peninsula, as well as the Yamal shelf, Ob and Taz bays.

2. Liquefied natural gas (LNG) zone. It is the area of responsibility of PJSC NOVATEK and its subsidiaries. The LNG cluster is located in the Yamal OGA in the eastern and northeastern parts of the Yamal Peninsula and the northern part of the Ob Bay; in the Gydan OGA — in the north of the Gydan Peninsula, including its coast with access to the waters of the Ob and Gydan bays.

Table 4 presents an assessment of the prospects for the development and monetization of natural gas resources located in the pipeline transport zone according to the data of PJSC Gazprom.

Table 4

Assessment of the prospects for the development and monetization of natural gas resources in the pipeline transport zone [8]

Field	Location	Project description	Gas transportation	Timeframe
Bovanekovo Industrial Group, projects of PJSC Gazprom (8.9 trillion m^3)				
Bovanenkovskoe OGCF	North-western coast of the Yamal Peninsula	Three gas fields were commissioned: 2012, 2014, 2018 (total annual production capacity of 115 billion m^3/year)	MGP Bovanenkovo — Ukhta — Torzhok 1, 2, 3 (2023)	2012
Kharasaveyskoe GCF	North-western coast of the Yamal Peninsula with access to the water	- construction of: booster compression station (BCS); - clusters of operational gas wells;	- CGTU; - GP connection of Kharasaveyskoe – Bovanenkovskoe CGTU OGCF, further along the north-	2023

[8] Source: compiled by the author.

	area of Baidaratskaya Bay	- ERD wells; - transport and energy infrastructure" [11]	ern corridor of the Arctic GTS.	
Kruzenshternskoe GCF Yuzhno-Kruzenshternskoe GF		A feasibility study is underway, which includes: - construction of artificial island structures; - construction of 12 well pads, including 7 on artificial island structures; - construction of an ERD well.	- CGTU; - GP connection of Kruzenshternskoe – Bovanenkovskoe CGTU OGCF (100 km), further along the northern corridor of the Arctic GTS.	2028
Semakovskiy cluster, a joint venture project between PJSC Gazprom and JSC RusGazDobycha (420 billion m^3).				
Semakovskoe GF	Northern coast of the Tazovskiy Peninsula with access to the water area of the Taz Bay	Development of the field from shore by means of an ERD well (horizontal well, design bottom hole – 3663 m, vertical depth – 849 m, vertical offset – 3045 m, KERD 3.46) and an offshore production complex (14.2 billion m^3/year).	- "complex gas treatment unit (CGTU)" [11]; "integrated gas treatment plant" [11]; - gas pipeline (GP)-connection CGTU GF Semakovskoe – CGTU OGCF Severo-Parusovoe – GTU OGCF Parusovoe – Gas Compressor Station (GCS) Yamburgskaya (122 km), further along the central corridor of the Arctic GTS	December 2022
Parusovoe OGCF	Northern part of the Tazovskiy Peninsula	An investment decision on development has been made, and project documentation has been approved.		2025
Severo-Parusovoe OGCF				2027–2029
Southern industrial group (Novoportovsk oil and gas accumulation hub), projects of PJSC Gazprom (1.3 trillion m^3)				
Novoportovskoe OGCF (leading raw material – oil)	South of the Yamal Peninsula	"A complex of technological and auxiliary facilities has been introduced: for associated petroleum gas (APG) – 11.03 billion m^3, natural gas – 5.07 billion m^3. Associated petroleum gas (APG) is compressed at the gas treatment facility – 8.59 billion m^3 POG utilization – 95%, of which: - POG injection into the reservoir – 89–93% - fuel for gas turbine power plants – 2–3%" [11]	Yamal Gas – Yamburg – Tula I, II subsea GP connection (115.5 km, including subsea part of the GP – 58.4 km)	October 2021
Kamennomysskoe GF	South-eastern coast of the	"Development of a technical and com-	It is possible to connect the Semakovskoe and	n/d

	Yamal Peninsula with access to the Gulf of Ob Bay	mercial proposal for the implementation of FEED; preparation of a technical scheme for the development of the PK1 reservoir (Cenomanian layer)" [11]	Pribrezhnoe clusters to the ETA, further along the central corridor of the Arctic GTS	
Blizhnenovo-Portovskoe GF	South of the Yamal Peninsula	"It is a pilot site of PJSC Gazprom for the extraction of minerals from Paleozoic sediments" [11]	GP connection of the Khambateyskoe CGTU GCF – Malo-Yamalskoe GCF – Blizhnenovoportovskoe CGTU GCF – Novoportovskoe CGTU OGCF – Gaz Yamal GP – Yamburg MGP – Tula I, II MGP	2023
Malo-Yamalskoe GCF		Design and survey work on the arrangement has been completed		2023–2025
Khambateyskoe GCF	South-eastern coast of the Yamal Peninsula with access to the Gulf of Ob Bay			2023–2025
Coastal cluster, projects of PJSC Gazprom, as well as joint ventures of PJSC Gazprom and JSC RusGazDobycha (> 1000 billion m^3, 60 billion m^3/year)				
Kamennomysskoye GF — sea	Ob Bay water area, Kamenny Cape area	The development of GF is supposed to be carried out through an ice-resistant stationary platform (ISP) and satellite ice-resistant block conductors (30 billion m^3/year).	Two lines of the subsea GP and GP-connection: GP GF Kamennomysskoe-Sea / GF Severo-Kamennomysskoe – CGTU OGCF Severo-Parusovoe – GCS Yamburgskaya, further along the central corridor of the Arctic GTS	2025
Severo-Kamennomysskoe GCF	Gulf of Ob water area, junction of the Tazovsky, Yamal and Gydan peninsulas			2027
Tota-Yakhinskoe GF	Southern coast of the Gydan Peninsula with access to the Taz Bay water area	GF development projects are under development. Development of GF from the shore through an ERD well.	- CGTU; - GP connection of Tota-Yakhinskoe – Antipayutinskoe CGTU GF – unified transport system (UTS) for gathering HC of Semakovskoe cluster – GCF Yamburgskaya	2030
Antipayutinskoe GF				
Chugoryakhinskoe GCF	Junction of the Taz and Ob Bays	GF development projects are under development. The development of GF is supposed to be carried out through ISP and satellite ice-resistant block conductors.	Lines of the subsea GP and GP-connection from the GF to the ETA of the Semakovskoe and Pribrezhnoe clusters, — GCS Yamburgskaya	
Obskoe GF	Gulf of Ob water area 20 km NW of Yamburg			

The Arctic gas transportation system (GTS) includes field and main gas pipelines. "The specificity of the Arctic GTS lies in the fact that gas pipelines in this area are built and operated in difficult natural and climatic conditions — in permafrost zones, in the presence of numerous natural obstacles (rivers, lakes, wetlands, etc.)" [17, Shchegolkova A.A.]. The renewal of the Arctic gas transportation infrastructure began with the intensification of GPW and additional exploration of

natural gas fields in the Yamal and Gydan OGAs, and the discovery of unique fields. “The formation of a comprehensive Arctic GTS includes the construction and increase in the capacity of existing main, field and distribution gas pipelines, compressor and gas distribution stations” [17].

Transportation of natural gas from the Arctic fields of the Yamal and Gydan OGAs is carried out in two directions:

- along the northern corridor from the fields of the Bovanenkovo industrial group, represented by the main gas pipeline (MGP) Bovanenkovo — Ukhta — Torzhok 1, 2, 3 (built in 2012–2023);
- along the central corridor from the fields of the Yuzhnaya industrial group, Semakovskiy and Pribrezhnyy clusters, represented by the MGP Progress (export) Yamburg — Western border; MGP system Yamburg — Tula I, II; MGP system Yamburg — Yelets I, II; MGP system Yamburg — Volga region (built in the 1980s – early 1990s).

Table 5 presents an assessment of the prospects for the development and monetization of natural gas resources in the LNG zone (according to PJSC NOVATEK).

Table 5

Assessment of the prospects for the development and monetization of gas resources in the LNG zone[9]

Field	Location	Project description	LNG transportation	Timeframe
Resource base of the Yamal LNG project, PJSC NOVATEK				
Yuzhno-Tambeyskoe GCF	North-eastern coast of the Yamal Peninsula with access to the Gulf of Ob water area	The GCF is developed through the operation of 208 directional wells. Liquefaction technology "Arctic Cascade" has been developed, which is based on utilisation of the Arctic climate. Four LNG production lines with a capacity of 17.4 million tons (24 billion m^3)/year, actually 21 million tons (29 billion m^3) in 2022. Transport and infrastructure facilities: - Sabetta airport, - Sabetta terminal (port)	A fleet of 15 Arc7 ice-class tankers was formed	2017
Resource base of the Arctic LNG 2 project, PJSC NOVATEK				
Salmanovskoe (Utrennee) OGCF (onshore/shelf)	Northern part of the Gydan Peninsula, partly on the eastern shore of the Gulf of Ob with access under the	LNG plant on gravity-fuelled bases (GFBs) Three LNG production lines PM 19.8 million tons (27.3 billion m^3)/year – LNG; 1.6	A fleet of 21 Arc7 ice-class tankers is being formed: - SBC Zvezda – 15 tankers; - Daewoo Shipbuild-	2023 (1st line), 2024, 2026

[9] Source: compiled by the author.

	water area	million tons/year of GC. Construction of transport and infrastructure facilities: - Utrenniy airport, - terminal (port) Utrenniy	ing & Marine Engineering (DSME) – 6 tankers (after the contract was cancelled in 2022, the counter-agent was changed). Tanker delivery dates are synchronised with the launch of the lines	
Stormovoe GF (onshore/shelf)	Northern part of the Gydan Peninsula, with access to the water area of the Ob and Gydan Bays			
Resource base of the Ob MCC and LNG project, PJSC NOVATEK				
Verkhnetiuteyskoe GF	Eastern part of the Yamal Peninsula	Engineering surveys are underway. LNG plant: in June 2022, a decision was made to use the Arctic Cascade liquefaction technology, three LNG production lines, 4.8 million tons (6.6 billion m^3)/year MCC plant: production from LNG – 2.2 million tons of ammonia, 130.000 tons of hydrogen	An investment decision is expected.	possibly after 2024, in September 2022 the project was announced to be suspended
Zapadno-Seyakhinskoe GCF				
Arcticheskoe OGCF				
Neutinskoe OGCF				
Resource base of the Arctic LNG 1 project				
Gydanskoye GF	Northern part of the Gydan Peninsula	GPW and additional field exploration is underway. Arctic LNG 1 will be realised under the Arctic LNG 2 project The project includes: - three LNG production lines, 19.8 million tons (27.3 billion m^3)/year – LNG; 1.6 million tons/year of GC; - a cargo terminal in the Tazovskiy district in the area of responsibility of Arctic LNG 1	An investment decision on the Arctic LNG 1 project is expected at the end of 2023. Contractors and investors for the construction of tankers for the Arctic LNG 1 project have not been determined.	possibly after 2027
Soletsko-Khanaveyskoe GCF				
Geofizicheskoe OGCF	North of the Gydan Peninsula on the eastern shore of the Gulf of Ob, with access under the water area of the Gulf of Ob (Geofizicheskoe)			
Trekhbugornoe GF				
Vostochno-Bugornoe GCF				
Im. V.I. Giri GCF (Bukharinskiy sector)				
Resource base of the Arctic LNG 3 project, PJSC NOVATEK				
Severo-Obskoe GCF	Northern part of the Ob Bay water area	Exploratory drilling is underway. Production parameters and LNG technology have not been approved. Estimated production capacity is 19.8 million tons (27.3 billion m^3)/year – LNG.	The parameters of the tanker fleet for the Arctic LNG 3 project have not been determined.	resource base is being explored

The LNG cluster is allocated in accordance with the projects for the construction of LNG plants of PJSC NOVATEK, as well as the Long-term program for the development of LNG in the Rus-

sian Federation. The organization of LNG production and transportation makes it possible to differentiate supply directions, overcoming sanction restrictions on pipeline gas [18, Kozmenko S.Yu., Masloboev V.A., Matviishin D.A.], "is a tool for the economic development of the regional space, aimed at creating sustainable model of development of the Russian Arctic" [19, Agarkov S.A., Bogoyavlenskiy V.I. et al.].

In addition to the above zones for the development of natural gas resources, a third zone can be distinguished (Table 6), which includes promising fields of the Tambeyskaya and Minkhovskaya industrial groups with an uncertain scheme of gas resources transportation.

Table 6

Assessment of the prospects for the development and monetization of gas resources of the Tambeyskaya and Minkhovskaya industrial groups [10]

Field	Location	Project description	LNG transportation	Timeframe
Tambeyskaya Industrial Group, JV projects of PJSC Gazprom and JSC RusGazDobycha (7.3 trillion m³)				
Tambeyskoye OGCF (Severo-Tambeyskoe, Zapadno-Tambeyskoe, Tasiyskoe, Malyginskoe). EGPC resource base in Ust-Luga.	North-eastern coast of the Yamal Peninsula	GPW and additional exploration of the fields using directional drilling is underway. Development of a feasibility study for a vertically integrated PFS production, transportation and processing project	Several transportation options are being considered: - GP connection of the Tambeyskoe CGTU OGCF – Kruzenshternskoe CGTU OGCF – Bovanenkovskoe CGTU OGCF, further along the northern corridor of the Arctic GTS; - construction of an LNG plant	2026
Minkhovskiy cluster, PJSC Rosneft project				
Vostochno-Minkhovskoe GF Minkhovskoe GF	Southern coast of the Gydan Peninsula	GPW and additional exploration of the GF using the total depth method is underway, and the volume of reserves has been specified. In the course of GF development Jet Pump technology, which was previously used for oil facilities, was applied. Perspective objects were prepared, including those not accounted for on the state balance sheet of the Russian Federation	Several transportation options are being considered: - gas supply to Gazprom's GTS based on the creation of a joint venture between Rosneft and Gazprom-Neft using the infrastructure of the Vostochno-Messoyakhskoe OGCF; - construction of an LNG plant	resource base is being explored

The Tambeyskaya industrial group is the area of responsibility of the joint venture between PJSC Gazprom and JSC RusGazDobycha. The fields of this group represent the resource base of the ethane-containing gas processing complex (EGPC) in Ust-Luga, however, the transportation scheme has not yet been approved, as well as for the Minkhovskiy industrial cluster, which is located in the area of responsibility of PJSC Rosneft, where several options for monetization of gas

[10] Source: compiled by the author.

resources are being considered: gas supply to Gazprom's GTS based on the creation of a joint venture between Rosneft and Gazpromneft using the infrastructure of the Vostochno-Messoyakhskoe oil and gas condensate field, construction of an LNG plant.

Conclusion

1. The assessment of the spatial distribution of gas resources in the AZRF of the WSOGP has shown that the least studied, but at the same time promising in terms of discovery of large natural gas fields, is the northern and north-western part of the WSOGP, which includes the Yamal and Gydan OGAs, including the adjacent waters of the Kara Sea, the Gulf of Ob, Taz and Gydan bays. The main prospects for growth of the natural gas resource base are associated with these OGAs against the background of declining production in the Pur-Taz and Nadym-Pur OGAs by all main parameters (number of discovered fields, explored hydrocarbon reserves, range of productivity, etc.).

2. Industrial gas content has been established in all oil and gas bearing areas of the Yamal and Gydan OGAs, but this indicator varies for individual OGRs. The degree of industrial "exploration of natural gas reserves in the Yamal OGA is quite high" [11, Shchegolkova A.A.], the exploration coefficient for the entire OGA reaches 0.7, which indicates that the oil and gas potential in this OGA has been established and studied quite thoroughly. The Gydan OGA is characterized by uneven distribution of free gas resources both in section and area. The degree of industrial exploration of natural gas reserves of the entire Gydan OGA is low, the exploration coefficient is 0.22. The main reason lies in the fact that geological exploration is predominantly local in nature, concentrated within the boundaries of the licensed areas of oil and gas companies at specific oil and gas promising sites and fields. The structure of reserves in these oil and gas bearing areas is quite complex and unequal: both in terms of the depth of occurrence and the nature of productivity, and because of the remoteness from the UGSS of Russia, areas with developed social and transport infrastructure.

3. The depletion of basic fields in the Pur-Tazovskaya and Nadym-Purskaya OGAs raises the question of shifting the raw material base of the gas industry to hard-to-reach areas of the Yamal and Gydan OGAs, including the waters of the Kara Sea, the Ob, Tazovskaya and Gydanskaya bays, which implies the creation of a production, transport and social infrastructure with mandatory synchronization in terms of: prospecting and exploration, commissioning of a complex of capacities in the production and development of fields, transportation, storage, processing of natural gas and its valuable components, distribution among consumers. The level of natural gas production at the level of 838.3–1048 billion m^3 per year declared in strategic documents by 2035 in the context of geopolitical confrontation and unprecedented sanctions pressure requires the adoption of strategically calibrated decisions on the development of newly discovered natural gas fields and the development of gas business projects. Based on the mining and geological characteristics of the deposits, natural and climatic conditions, environmental safety, the presence of industrial and

social infrastructure, as well as taking into account the current economic situation in the development of Arctic natural gas reserves, the most justified and promising at the moment is the expansion of the resource base through the development of satellite fields and a number of coastal fields in the Yamal and Gydan OGAs that already have a developed mining, processing, transport and social infrastructure, as well as through additional exploration of open and developing fields and deposits.

4. Based on field development technology, processing and transportation schemes, when assessing the prospects for the development and monetization of gas resources, a pipeline transport zone and an LNG zone are distinguished. The pipeline transport zone of the Yamal and Gydan OGAs is represented by gas clusters located within the scope of operation of the northern and central corridors of the Arctic GTS. When building an optimal scheme for the monetization of natural gas through the Arctic GTS, it is promising to connect newly discovered wells and fields of the Yamal and Gydan OGAs to the UGSS using field pipelines. “For coastal fields, options are possible for deep drilling and development of gas resources from the shore using onshore drilling equipment through an ERD well with subsequent transportation of hydrocarbons to onshore technological complexes using a pipeline system, integration of offshore gas transportation infrastructure into existing or newly created ones, following the example of those being implemented gas projects in the Ob and Taz Bays” [17, Shchegolkova A.A.].

The LNG zone is represented by fields that are the resource base for both ongoing and potential LNG projects of PJSC NOVATEK, located in an area of high inaccessibility — the northeastern and eastern coasts of the Yamal Peninsula and the north of the Gydan Peninsula, including the water area. Proven liquefied natural gas production technologies will be optimal for the design of LNG projects in the AZRF: “Arctic Cascade”, which is based on the use of the characteristics of the Arctic climate, domestic technologies and equipment (Yamal LNG), as well as the production of liquefaction lines on gravity-type foundations (Arctic LNG 2) subject to synchronization with the construction of Arc7 ice-class tankers.

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A New Military and Political Landscape in the Arctic: China Perspective

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Abstract. The Arctic is becoming another node in a series of geopolitical contradictions between Russia and the West, where Moscow and Beijing speak largely from the same positions. This trend has become more relevant after the start of the Russian special military operation in Ukraine, which was also well understood by Chinese scientists and experts. In this work, the author has attempted to analyze the Chinese academic discourse, which considers the current geostrategic situation in the Arctic and substantiates the possibility and necessity of military and political cooperation between Russia and China in the Arctic region. Chinese scientists and experts identify a number of new trends in NATO's Arctic policy and conclude that the adjustment and new trends in the Arctic policy of the North Atlantic Alliance closely interact with the international political situation and the Arctic geopolitical game and correspond to the transformation and expansion of NATO's strategic functions in recent years. As for the impact of the Russian-Ukrainian conflict on the Arctic, China believes that it is mainly reflected in changing the geopolitical structure of the Arctic; undermining the foundations of international cooperation in the region; negatively affecting the process of economic development of the Arctic; and increasing pressure on the Arctic climate environment. A general analysis of the military-political situation in the Arctic in the context of China's interests leads Chinese researchers to the conclusion that it is necessary to strengthen Russian-Chinese interaction and cooperation in the region. This conclusion allows them to formulate specific recommendations: facing new challenges in the Arctic and its increasing militarization, China and Russia need to define a program of security cooperation and increase its level.

Keywords: *Arctic, Russian-Chinese relations, Northern Sea Route, NATO, military-political cooperation, joint patrols*

Introduction

Russian-Chinese co-operation and interaction in the Arctic has been going on for several years. Traditionally, it has been considered to be of a purely economic nature (energy, infrastructure projects) and, according to Russian experts, there was no reason to believe that in the foreseeable future the interaction between the two powers in the Arctic would take a military direction [1].

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[1] Trenin D. Rossiya i Kitay v Arktike: sotrudnichestvo, sopernichestvo i posledstviya dlya evraziyskoy bezopasnosti. Rossiyskiy sovet po mezhdunarodnym delam [Russia and China in the Arctic: cooperation, rivalry and consequences for Eurasian security. Russian Council on International Affairs]. URL: https://russiancouncil.ru/analytics-and-comments/comments/rossiya-i-kitay-v-arktike-sotrudnichestvo-sopernichestvo-i-posledstviya-dlya-evraziyskoy-bezopasnost/ (accessed 20 November 2023).

However, Russia has also noted another trend: within the strategic triangle of Russia–US–China, the Arctic has become another node in a series of geopolitical contradictions, where Moscow and Beijing are largely united in their positions. Problems in the Arctic region have been accumulating, which promises increased political uncertainty in the medium and long term [2]. Russian researchers have also noted that the growing contradictions among the AC members began in the 2010s as a result of the intensifying rivalry for control over the Arctic's natural resources and transport communications. During this period, all Arctic countries in one way or another strengthened their military presence in the region [1, Zhilina I. Yu., p. 68].

This trend became more relevant after the beginning of the Russian special military operation in Ukraine, which was also well understood by Chinese scientists and experts. That is why the author aimed to analyze the Chinese academic discourse, which examines the current geostrategic situation in the Arctic and substantiates the possibility and necessity of military and political cooperation between Russia and China in the Arctic region, as well as to evaluate some proposals of Chinese experts in this area.

Chinese analysis of the geostrategic situation in the Arctic

Chinese researchers have noted that as conflicts between the United States, the West and Russia deepen, especially after the escalation of the conflict between Russia and Ukraine, the Arctic, which is equally important in terms of strategic and military value, has been drawn into the centre of geopolitical competition. At the end of August 2022, NATO Secretary General Jens Stoltenberg, during his visit to Canada, said for the first time that "cooperation between Russia and China in the Arctic region is not in the interests of NATO countries", and therefore NATO will strengthen its presence in the region.

China also drew attention to the fact that in October 2022, the United States adopted a new strategy for developing its presence in the Arctic until 2032, Regaining Arctic Dominance. The strategy includes plans to strengthen the American military presence in the Far North. The document identifies Moscow and Beijing as the main threats and challenges. Much attention in the strategy is paid to Finland and Sweden joining NATO. It is assumed that after this, significant Arctic territories will fall under the scope of Article 5 of the NATO Charter on Collective Defense, which will encourage new members of the community to strengthen their defense capabilities [3].

However, Lǐ Míngwáng and Zhēn Gǔdì believe that Denmark and other Northern European countries have a "relatively ambivalent attitude towards China's participation in Arctic affairs". On the one hand, China's advantages in capital and markets can provide an important impetus to the economic development of the Arctic region, encourage China to participate in Arctic affairs, and

[2] Kadomtsev A. Rossiya, SShA i KNR usilivayut pozitsii v Arktike [Russia, the USA and China are strengthening their positions in the Arctic]. URL: https://interaffairs.ru/news/show/29418 (accessed 20 November 2023).
[3] Arktika stala zonoy protivostoyaniya Rossii i SShA. Pochemu ona tak vazhna dlya sil'neyshikh derzhav planety? [The Arctic has become a zone of confrontation between Russia and the United States. Why is it so important for the strongest powers on the planet?]. URL: https://lenta.ru/articles/2023/04/08/arctic_usa_russia/ (accessed 20 November 2023).

balance the forces of the United States and Russia in the Arctic region. On the other hand, given the fact that the United States views China as its main strategic competitor, the attitude of these countries towards China will inevitably suffer [4].

Chinese scientists and experts (Zhào Níngníng, Gōng Zhuō, etc.) highlight the following new trends in NATO's Arctic policy:

- Climate issues, such as sea level rise caused by global warming, have had a significant negative impact on NATO's regional and global action capabilities. Melting polar ice and permafrost could pose numerous threats to NATO allies' Arctic warning stations and other critical infrastructure. To adapt to climate change, NATO allies have formally included defense planning, capability development and military exercises in the NATO 2030 Agenda. NATO also committed to strengthening exchanges with partner countries and other international organizations dealing with climate change and security issues. In July 2021, NATO announced the Nordic Environment Vision 2021 plan, co-funded by NATO's Allied Command Transformation Office, which aims to improve visibility of the Arctic region and help NATO countries understand the impact of climate change on national defense security and safety [2, Zhào N., Gōng Z., pp. 37–50].
- NATO is increasingly focusing on military exercises and capacity building in the Arctic. In terms of the scale of exercises, the number of participating NATO member states and their weapons continues to increase.
- International public opinion about the "Chinese Arctic threat theory" is being purposefully formed. In June 2021, NATO Secretary General Stoltenberg said that while focusing on trade and engagement with China, it was also necessary to contain China's economic growth and investments in military power in various areas, especially with regard to the Arctic and the Cyberspace invasion.
- In April 2021, the US "Strategic Competition Act" unilaterally attempted to extend domestic American legislation to the Arctic region and the territory of Arctic countries, which reflects the US intention to strengthen its control over the Arctic governance system. The change in orientation of the US security strategy in the Arctic influenced the Arctic policy of other large NATO countries [Ibid].
- Chinese experts believe that the Russian-Ukrainian conflict will give NATO an incentive to further advance its participation in Arctic affairs and will have an important impact on the process of Arctic governance, as well as on the strategic expansion and functional transformation of NATO. In particular, in an international context where NATO deliberately creates and provokes the "Chinese threat theory", increasing NATO's involvement

[4] Lǐ Míngwáng, Zhēn Gǔdì. Huán shí shēndù] běijí, huì chéngwéi běiyuē duì é xīn zhànchǎng ma huánqiú shíbào [Will the North Pole become NATO's new battleground against Russia?]. URL: https://m.huanqiu.com/article/49U1uxhusgJ (accessed 20 November 2023).

in Arctic affairs, directly or indirectly, will pose a serious challenge to the protection and expansion of China's Arctic rights and interests.

Chinese scientists and experts conclude that the adjustment and new trends in NATO's Arctic policy closely interact with the international political situation and the Arctic geopolitical game and correspond to the transformation and expansion of NATO's strategic functions in recent years. They believe that the conflict between Russia and Ukraine will accelerate NATO's involvement in Arctic affairs, and competition for security in the Arctic between the seven Arctic countries and Russia will become increasingly obvious, which will worsen the external environment for the development and maintenance of China's Arctic rights and interests [2, Zhào Níngníng, Gōng Zhuō, pp. 37–50].

As for the impact of the Russian-Ukrainian conflict on the Arctic, China believes that it is mainly expressed in four aspects.

- Firstly, the geopolitical structure of the Arctic has changed. A pattern of confrontation between Russia on the one hand and the United States, Canada and the five countries of Northern Europe on the other has been formed in the Arctic region.
- Secondly, the foundations of international cooperation in the Arctic have been undermined. Russia was excluded from most Arctic governance mechanisms as part of Western sanctions against Russia, which greatly reduced the effectiveness of these governance mechanisms and even stalled them.
- Thirdly, the Ukrainian conflict influenced the processes of economic development of the Arctic. Western countries introduced unprecedented economic sanctions against Russia, which caused a certain negative impact on these processes. Due to the impact of Western sanctions on Russian shipping companies, the suspension of cooperation between Western and Russian shipping companies and the cancellation of Russian membership in the International Association of Classification Societies, Chinese scientists and experts admit a decrease in the international coefficient of use of the Northern Sea Route by Russia.
- Fourthly, pressure on the Arctic climate environment has increased. International cooperation in the Arctic has faced additional challenges, including research cooperation between Western countries and Russia in the field of Arctic climate and environment [5].

According to Wáng lì, lLú Lánfēn, Wáng Xù, Chén Zinán, three factors will determine the general direction of further development of the situation in the Arctic in the long term:

Firstly, new changes in the situation in the Arctic are inherently the result of a long-term accumulation of negative consequences of the inadequate policies of the United States and NATO countries in the Arctic region.

[5] Wáng Chénguāng. É wū chōngtú duì běijí chǎnshēngle nǎxiē yǐngxiǎng [How the Russian-Ukrainian conflict affected the Arctic]. Grandview Analytical Center. April 2022. URL: https://brgg.fudan.edu.cn/articleinfo_4795.html (accessed 20 November 2023).

Secondly, various sanctions imposed on Russia by Western countries after the Russian-Ukrainian conflict are the direct cause of the fluctuating situation in the Arctic. The Arctic is located at the intersection of the three main regions of Northern Europe, North America and the Asia-Pacific region, and Russia is directly connected with Western countries. Thus, according to experts, "the shock from Arctic management has the characteristics of being short-term, widespread, and deep".

Thirdly, the Arctic is not the main zone of the Russian-Ukrainian conflict, but a territory affected by the conflict. This sets a clear upper limit to the instability of the situation in the Arctic: the existing basic mechanisms of regional governance cannot be disbanded, and the likelihood of direct military conflicts between the countries of the region is low. The general trend of shifting the situation in the Arctic from a focus on economic cooperation to a focus on security games will not change for some time, but the duration and degree of fluctuation of the situation will be determined by factors such as the conflict between Russia and Ukraine and the general relationship between Russia and Western countries [6].

Security management in the Arctic is entirely dependent on the overall climate of relations between Russia and NATO and becomes more vulnerable to fluctuations in the geopolitical security situation outside the region. Stimulated by the conflict between Russia and Ukraine, a new situation may arise in which the "security dilemma" will intensify, and the "alliance dilemma" will be superimposed on it.

Currently, Arctic countries such as Sweden, Finland, Norway and Canada have made it clear that they will increase their defense spending and strengthen their security and defense capabilities in the Arctic region. The Arctic countries have actually decided to ease the burden of the "security dilemma" in the region by strengthening their defense capabilities. But in reality, such behavior will only increase the level of security threats faced by all parties, make all countries more insecure, and ultimately provoke a regional arms race.

Besides, it is difficult to restore the Arctic military communication mechanism. After the Crimean incident in 2014, the mechanism of meetings of the leaders of the armed forces of the Arctic countries was suspended, it led to the long-term absence of a large dialogue platform at the level of military security management in the Arctic region. Before and after Russia assumed the rotating chairmanship of the Arctic Council in 2021, it repeatedly proposed the gradual resumption of the mechanism of meetings of the commanders of the armed forces of the Arctic countries and even formally included this mechanism in the framework of the Arctic Council, but all of them were opposed by the Biden administration. After the Russian-Ukrainian crisis, military confidence and security measures within the framework of the NATO – Russia Council and OSCE meetings were actually interrupted one after another, and a dangerous pause arose in the Arctic security

[6] Wáng lì, lLú Lánfēn, Wáng Xù, Chén Zinán. É wū chōngtú duì běijí dìqū yǐngxiǎng pínggū [Assessing the impact of the Russian-Ukrainian conflict on the Arctic]. Aisixiang Analytics. July 2022. URL: https://www.aisixiang.com/data/133945.html (accessed 20 November 2023).

management mechanism. The level of mutual trust in the field of politics and security in the Arctic may continue to decline, and the restoration of appropriate dialogue mechanisms may take a long time [7].

At a time when "Arctic countries' governance cooperation has been undermined, economic development has been hampered, and security relations are at odds", non-Arctic countries should play a more active role and work together to restore dialogue and cooperation, Chinese experts say. The observer states of the Arctic Council should promote dialogue between Russia and other Arctic countries and contribute to practical cooperation in rescue operations, disaster response, scientific research and other aspects within the Arctic Council. The observer states should "perceive the current situation as an opportunity to create a mechanism for regular consultations for the observer states, to deepen communication and coordination of positions of all parties, and to play a constructive role by jointly protecting the legitimate rights and interests of the observer states in the Arctic region, contributing to the development of the Arctic governance system in a fair, reasonable and well-ordered direction" [8].

Is military-political interaction between Russia and China possible in the Arctic region?

Assessing the possibility and feasibility of military-political interaction between China and Russia in the Arctic, Chinese authors proceed both from their assessments of the current strategic situation in the region and from the resulting need to protect Chinese interests in the Arctic.

According to Chinese researchers, the United States is exaggerating the expansion of Chinese influence in the Arctic; new trends in the US Arctic strategy and its impact on Arctic management show that the US is "wary of" cooperation with China, trying to "introduce ideological factors into competition with China in economic, technological and other areas". The new version of the US National Strategy for the Arctic region once again exaggerates Russia's military capabilities and its plans to increase its military presence in the Arctic, which further intensifies competition for security in the Arctic [3, pp. 7–80, 84]

Thus, analyzing the Arctic strategy of the Biden administration and the prospects for its implementation, Associate Professor of the Faculty of politics and international relations of the Central China Normal University Zhào Níngníng [4, pp. 35–48] points out that, given the dual status of the United States as an Arctic state and a hegemonic state, adjustments to its Arctic strategy will undoubtedly have a profound impact on Arctic geopolitics, governance structure, and the protection of China's Arctic rights and interests.

In this regard, Zhào Níngníng proposes the following Chinese "countermeasures":

- Strengthen the scientific basis for Arctic engagement. Since the United States, Russia and other Arctic countries enjoy geographic advantages and Arctic identity advantages

[7] Wáng lì, lLú Lánfēn, Wáng Xù, Chén Zinán. É wū chōngtú duì běijí dìqū yǐngxiǎng pínggū [Assessing the impact of the Russian-Ukrainian conflict on the Arctic]. Aisixiang Analytics. July 2022. URL: https://www.aisixiang.com/data/133945.html (accessed 20 November 2023).
[8] Ibid.

and have a long history of activities in the region, China needs to "strengthen scientific research on the Arctic high seas and strive to participate in relevant international joint scientific research projects"[4, pp. 35–48].

- Use military and civilian satellite navigation systems to enhance awareness and monitoring of the Arctic region. In the context of the United States and Russia strengthening satellite monitoring of the Arctic, a Chinese expert proposes using the Beidou system for all-weather monitoring of the Arctic region, since it "provides an important basis for the navigational safety of commercial vessels and protects the overall interests of national security" [4, pp. 35–48].
- Explore new ways to develop Arctic bilateral diplomacy and seek to restrain the actions of the United States in the Arctic, leaving space for cooperation in Sino-American relations in the region. China should strive to maintain the stable development of cooperation between China and the Nordic countries in the Arctic by deepening bilateral exchanges and scientific and technological diplomacy. Against the background of European and American sanctions, Russia, as Zhào Níngníng believes, "will rely more on the political and economic support of China" [4, pp. 35–48].
- Since China's participation in Arctic affairs has faced serious negative international public opinion pressure in recent years, Chinese polar affairs authorities should strengthen coordination of the participation of domestic think tanks and scientists in permanent forums on Arctic issues, such as the Arctic Circle Forum, as well as conduct academic dialogues and exchanges with relevant polar research think tanks to strengthen positive perception of China's Arctic policy [4, pp. 35–48].

A general analysis of the military-political situation in the Arctic in the context of China's interests leads Chinese researchers to the conclusion that it is necessary to strengthen Russian-Chinese interaction and cooperation in the region. In their opinion, since "in Arctic affairs, Russia no longer faces one Arctic country, but the NATO Arctic Alliance, this may weaken Russia's position and its interests in Arctic cooperation". Therefore, "for the development of the Arctic, Russia urgently needs to find reliable partners from non-Western and non-NATO countries". In this context, China "is the most suitable partner for Russian Arctic cooperation, since it has strong financial and technical power, shows great enthusiasm for the development of the Arctic and has a long-term cooperative relationship with Russia" [9].

This conclusion allows the Chinese authors [10] to formulate specific recommendations: in the face of the challenges of extreme natural conditions in the Arctic and the influence of the US

[9] Chén Chuān. The Arctic Institute: Sino-Russian Arctic Cooperation in the Context of Arctic Fragmentation [Russian-Chinese cooperation in the Arctic in the context of the Arctic watershed]. The Arctic Institute. Arctic Collaboration Series 2023. URL: http://www.polaroceanportal.com/article/4612 (accessed 20 November 2023).

[10] Xiè Xiǎoguāng, Dù Dòngguāng: Fángyù xìng xiànshí zhǔyì shì yù xià de zhōng é běijí ānquán hézuò [Sino-Russian Arctic security cooperation from a defensive realism perspective]. URL: https://www.bfsujournals.com/c/2022-07-13/512805.shtml (accessed 20 November 2023).

strategy of militarizing the Arctic, China and Russia "need to define a security cooperation program and increase the level of cooperation in this field". At the same time, Chinese experts emphasize that the Arctic is much more important to Russia than to China because Russia is an Arctic state. Although China is increasingly promoting its cooperation in the region, the Arctic is still not the main priority of Chinese foreign policy [5, Xiè X., Dù D.].

Given China's well-known concerns about the vulnerability of its southern sea lanes connecting the Indian Ocean to the South China Sea, Beijing views the NSR as a potential alternative trade route to its markets in Europe and the United States [11]. Therefore, Chinese researchers have separately analyzed the problem of ensuring the safety of navigation in Arctic waters, especially in the waters of the Northern Sea Route (NSR). Thus, Zhang Cheng, Professor of the China Institute of Boundary and Ocean Studies of Wuhan University, notes that the number and quality of Russian icebreakers, the development of the Northern Sea Route in cooperation with China and other countries, the development and construction of military airfields and deep-sea ports along the waterway are considered by the United States as a challenge to its national interests. At the same time, the construction of military bases and the increased frequency of joint military exercises have negatively impacted the sensitive and fragile Arctic environment. Influenced by the Russian-Ukrainian conflict, international shipping in the Arctic faces new challenges against the backdrop of anti-Russian sanctions. The level and severe shocks of the geopolitical environment around Russia negatively affect the security of Arctic routes, especially the Northern Sea Route.

Professor Zhang Cheng identifies "factors of the political game that go beyond the assessment of economic benefits". The West accuses Russia of "improper" management of the Northern Sea Route, which is allegedly "non-transparent" and does not comply with "common international standards". The resistance of international shipping giants to the use of the Northern Sea Route is obvious. At the same time, Zhang Cheng notes, the development of the Arctic sea route has "irresistible deep economic motives". "Taking the Northern Sea Route as a starting point, it is necessary to deepen cooperation between China and Russia in the Arctic and create a "Polar Silk Road", which could become a new starting point for Chinese–Russian partnership in the region" [6, pp. 54–63].

Chinese researchers state that security in the waters of the Northern Sea Route, including the construction of the Polar Silk Road, may be at risk due to American plans to implement the Freedom of Navigation Operations Program (FONOP). The US Navy Secretary said that the country's navy will begin to patrol Russian shores in the Arctic regularly, drawing an analogy with the situation in the South China Sea, where China and a number of other countries have disagreements over maritime boundaries and areas of responsibility. In August 2021, the US State Depart-

[11] Nong Hong. China and the United States in the Arctic: Exploring the Divergence and Convergence of Interests. Institute for China-America Studies. October 2022. P. 14. URL: https://chinaus-icas.org/wp-content/uploads/2022/10/China-US-Arctic-Report-10.2022-Final.pdf.

ment Arctic Coordinator stated that "the American government views the Arctic as NATO's northern flank" [12].

The US National Guard is also preparing for possible conflicts with the Russian Federation and China in the Arctic, including the possibility of a military clash of Moscow and Beijing with Washington's NATO allies, according to Military Times. "The National Guard is preparing for possible conflicts in the Arctic with Russia and China... NATO allies such as Norway also operate in the region, which the United States will be obliged to support in the event of a confrontation" [13].

Back in March 2019, the Russian government approved the rules for passage of the NSR by foreign warships, which stipulate a mandatory 45-day advance notice and the presence of Russian pilots on board. The rules provided for refusal to pass through the NSR and the adoption of emergency measures in the event of unauthorized traffic [14]. A hypothetical refusal of US naval vessels to follow these rules could lead to the risk of naval incidents.

Russia, for its part, has prepared a plan to counter possible provocations on the Northern Sea Route. The plan was developed by the Ministry of Defense, the Federal Security Service and "economic entities of the Arctic". It includes "building up reconnaissance and defense means on archipelagos and the Arctic Ocean coast, increasing the intensity of flights of the Russian Armed Forces and the Federal Security Service of Russia". Possible options for action may be the passage of US Navy ships (vessels): transit passage along the entire waters of the Northern Sea Route from west to east or in the opposite direction, passage from the Bering Strait to the Novosibirsk Islands or from the Barents Sea to the Severnaya Zemlya archipelago, simultaneous entry of two ships from the western and eastern directions, accompanied by maneuvering in close proximity to the locations of troops (forces) of the Northern Fleet and the Eastern military district [8, Morozov V.A., Zubarev A.A., Khryapov A.D.].

In this context, Chinese experts are considering the possibility of joint maritime patrols as one of the forms of Russian–Chinese military-political interaction. At the end of April 2023, Russia and China signed a memorandum of cooperation between the coast guards of the two countries and then conducted relevant exercises in the Barents Sea. The theme of the exercise was the integrated use of available capabilities to counter maritime security threats, search and rescue at sea, and environmental protection tasks.

China notes that the Coast Guard, as the "second navy" of the United States, can be incorporated into the naval combat order at any time, turning it into a powerful auxiliary force for US

[12] SShA nachnut patrulirovanie vblizi rossiyskikh beregov v Arktike [The US will begin patrols near the Russian coast in the Arctic]. URL: https://iz.ru/1108922/2021-01-07/ssha-nachnut-patrulirovanie-vblizi-rossiiskii-beregov-v-arktike (accessed 20 November 2023).

[13] Natsgvardiya SShA gotovitsya k vozmozhnym konfliktam s Rossiey i Kitaem v Arktike [The US National Guard is preparing for possible conflicts with Russia and China in the Arctic]. URL: https://rg.ru/2023/01/30/smi-nacgvardiia-ssha-gotovitsia-k-vozmozhnym-konfliktam-s-rossiej-i-kitaem-v-arktike.html (accessed 20 November 2023).

[14] Rossiya razrabotala pravila prokhoda Severnogo morskogo puti dlya inostrannykh boevykh sudov [Russia has developed rules for the passage of the Northern Sea Route for foreign warships]. URL: https://riafan.ru/1157683-rossiya-razrabotala-pravila-prokhoda-severnogo-morskogo-puti-dlya-inostrannykh-boevykh-sudov (accessed 20 November 2023).

intervention in regional affairs. In response, Chinese experts propose to begin "cooperation to conduct joint patrols in the Arctic region to ensure the presence of maritime law enforcement forces, as well as navigation and rescue of civilian vessels". They suggest that the patrol route would extend along the Arctic waterway, and the waters of Alaska, an enclave of the United States, would also be included in the patrol zone of the Chinese and Russian coast guard agencies [15].

It should be noted that Chinese scientists and experts offer a clearly broad interpretation of the above-mentioned Memorandum, referring, for example, to the fact that in August 2023, the third joint maritime patrol of the Pacific Ocean waters by naval vessels of the two countries in the south-western part of the Bering Sea took place, during which the search and destruction of an enemy submarine was practiced. However, it is far from certain that the possibility of joint patrols will be extended to the waters of the NSR, which Russia considers as part of its sovereign space and national jurisdiction.

Conclusion

Thus, the author has shown that Chinese scientists and experts have made timely and thorough review of the evolution and prospects of the geopolitical and geostrategic situation in the Arctic related to the tendency towards militarization of the region and the strengthening of NATO's military presence there, especially in the context of the Ukrainian crisis.

At the same time, as the author has also shown, the analysis of Chinese scientific discourse on the development of the military-political situation in the Arctic region leads its participants to the conclusion about the expediency and necessity of military-political interaction between China and Russia in the Arctic, including the development of its specific forms. However, such conclusions and proposals clearly need further substantiation and specification, including in the course of joint research and discussions between the expert communities of the two countries.

On the one hand, the Russian expert community has an entrenched perception that Russia is able to independently cope with the tasks of ensuring security in the Arctic Zone of the Russian Federation (AZRF) and the waters of the NSR. On the other hand, many people in Russia believe that military-political interaction with China in the Far East, including the Bering Sea, which is considered part of the Arctic, is largely symbolic in nature and is intended to symbolize the strategic partnership of the two countries, sending a signal to the United States on the possibilities of resisting American expansion.

Therefore, Russia and China have a long way in their joint research of the strategic situation in the Arctic, which will eventually determine the possibility and specific forms of military-political cooperation in the region.

[15] Zhōng é liǎng guó hǎi jǐng hé bīng yī chù, liánhé xúnháng xuǎn zài měi guójiā ménkǒu [Chinese and Russian coast guards join forces at US doors]. URL: https://news.ifeng.com/c/8PVL6Yu14Nk (accessed 20 November 2023).

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Model of Electoral Behavior of a Resident of the Arctic Zone of the Russian Federation in Regional Elections of the Highest Official (2013–2022)

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Abstract. Being one of the strategically important regions for the development of the Russian Federation and a variety of aspects of its security, the Arctic represents a platform for defending the country's national priorities. The nature of the policy pursued in the Arctic zone of the Russian Federation determines the status of the state as an Arctic power. Therefore, the aim of the study was to investigate the electoral preferences and to design the electoral model of the residents of the Russian Arctic in the gubernatorial elections in the period from 2013 to 2022. By means of multifactor comparative analysis using the clustering methodology, the author managed to determine such variables for the construction of the electoral model of a resident of the Russian Arctic zone as the level of electoral activity, voting for typical and atypical candidates and for the conditionally designated candidate "against all" as a marker of legitimate support for registered candidates and/or protest voting. The study revealed that, unlike the other federal subject's voters, residents of the Russian Arctic take a more active part in the election of the head of the region, providing electoral support to the candidates of the "United Russia", although in some cases atypical voting was observed, the percentage of which was insignificant. At the same time, the data obtained show that the number of invalid ballots is higher in the Arctic regions than in the constituent entities of the Russian Federation. Thus, the constructed model of electoral behavior of the resident of the Arctic zone of the Russian Federation in the implementation of regional policy in the region allows taking into account not only quantitative, but also qualitative parameters of electoral preferences of the Arctic residents to predict the results of future elections.

Keywords: *Arctic, model of electoral behavior, resident of the Arctic zone of the Russian Federation, gubernatorial elections, electoral turnout, electoral preferences*

Introduction

The activity of the population in elections is an important component in the implementation of state policy. Electoral preferences determine the vector of its development through the legitimation of existing both internal and foreign policy practices of ensuring the country's national security. In this process, the fact of implementation of state will at the regional level becomes important. We believe that the specifics of the electoral behavior of residents depend on the place of residence of the voter, the nature of the socio-economic development of the region, and its strategic importance for the country.

The geographical factor continues to be the basis for determining the significance of geopolitical claims of the state. The Arctic is a geopolitical platform for the declaration of national

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wills on the part of the world's leading actors, which inevitably affects the actualization of research attention to the region. The study of the resource potential of the Arctic zone is enriched by an analysis of its environmental, socio-economic, and cultural aspects of security policy [1, Osmundsen L.; 2, Bie Q., Wang S. et al.; 3, Ulitskaya N., Ivanovaa N., Telushkina E. et al.; 4, Sovacool B.K., Baum C., Low S.; 5, Romanova T.; 6, Miller P.; 7, Cassivi A., Covey A., Rodriguez M.J. et al.]. The strategic nature of the Arctic and the interest in the development of this region at the level of national strategies of the main geopolitical players are known, one of which is the Russian Federation, which has the longest Arctic zone among the countries of the Arctic Five (Russia, Canada, USA, Norway and Denmark). After the beginning of the special military operation (SMO) of the Russian Federation in Ukraine in February 2022, a non-parity tendency of "seven plus one" is emerging in the Arctic Council: Canada, the USA, Norway, Sweden, Finland, Denmark and Iceland refused to take part in all meetings chaired by the Russian Federation and held on its territory [8, Zhuravel V.P., Timoshenko D.S., p. 110]. We believe that Finland's accession to NATO in April 2023 will further aggravate this trend. Thus, the Arctic is transforming from an actor of international cooperation towards a region of claims for the strategic interests of the Arctic and sub-Arctic powers. Such a change poses a threat to the development of the Arctic zone of the Russian Federation (AZRF) and the state security of the country as a whole.

In this regard, it is important to study the regional practices of the subjects of the Russian Federation that are part of the Arctic zone, through which the Strategy for Developing the Russian Arctic Zone and Ensuring National Security until 2035 is implemented [1]. Special attention should be paid to the heads of these regions, their personality, leadership qualities, party preferences, which to a large extent is realized through the level of electoral support for a candidate for an elective position. In the current situation, it becomes relevant to study the opinion of the population of the Russian Arctic regarding the policies pursued in the region by studying the electoral behavior and political preferences of AZRF residents in the gubernatorial election in the region, which determined the purpose of this paper. In this paper the term "gubernatorial elections" is used, which, in case of the Russian Federation, means regional elections of the highest official in federal subjects, including the Arctic ones.

In accordance with the amendments to the federal law "On Basic Guarantees of Electoral Rights and the Right to Participate in Referendums of Citizens of the Russian Federation" [2] that came into force on June 1, 2012, direct elections of heads of constituent entities of the Russian

[1] O Strategii razvitiya Arkticheskoy zony Rossiyskoy Federatsii i obespecheniya natsional'noy bezopasnosti na period do 2035 goda: Ukaz Prezidenta Rossiyskoy Federatsii ot 26 oktyabrya 2020 [On the Strategy for developing the Russian Arctic zone and ensuring national security until 2035: Decree of the President of the Russian Federation of October 26, 2020]. URL: http://www.kremlin.ru/acts/bank/45972 (accessed 08 March 2023).

[2] Federal'nyy zakon ot 12 iyunya 2002 g. N 67-FZ «Ob osnovnykh garantiyakh izbiratel'nykh prav i prava na uchastie v referendume grazhdan Rossiyskoy Federatsii» (s izmeneniyami i dopolneniyami) [Federal Law of June 12, 2002 No. 67-FZ "On the basic guarantees of electoral rights and the right to participate in a referendum of citizens of the Russian Federation" (with amendments and additions)]. URL: https://base.garant.ru/184566/89300effb84a59912210b23abe10a68f/ (accessed 18 January 2023).

Federation were returned, which to a large extent contributed to some democratization policies in the regions.

The Arctic zone of the Russian Federation includes the northern regions of nine constituent entities, located in four (half of the total) federal districts:

Arctic zone of the Russian Federation [3]:

I. North-Western Federal District:

1. Arkhangelsk Oblast (9 [4] — Arkhangelsk city, Mezenskiy district, Novaya Zemlya urban district, Novodvinsk city, Onega district, Primorskiy district, Severodvinsk urban district, Leshukonskiy district, Pinezhskiy district)
2. Murmansk Oblast (entire territory of the Oblast [5]);
3. Nenets Autonomous Okrug (entire territory of the Okrug [6]);
4. Republic of Karelia (6 [7] — Belomorskiy district, Kalevalskiy district, Kemskiy district, Kostomuksha urban district, Loukhskiy district, Segezhskiy district);
5. Komi Republic (4 [8] — Vorkuta urban district, Inta urban district, Usinsk urban district, Ust-Tsilemskiy district).

II. Ural Federal District:

6. Yamalo-Nenets Autonomous Okrug (entire territory of the Okrug [9]).

III. Siberian Federal District:

7. Krasnoyarsk Krai (4 [10] — Norilsk city, Taimyrskiy Dolgano-Nenets district, Turukhanskiy district, partially Evenki district (10 rural settlements: “Surinda settlement”, “Tura settlement”, “Nidym settlement”, “Uchami settlement”, “Tutonchany settlement”, “Essey settlement”, “Chirinda settlement”, “Ekonda settlement”, “Kislokan settlement”, “Yukta settlement”)) [11].

IV. Far Eastern Federal District:

8. Republic of Sakha (Yakutia) (13 [12] — Abyiskiy ulus, Allaikhovskiy ulus, Anabarskiy ulus, Bulunskiy ulus, Verkhnekolymskiy ulus, Verkhoyanskiy district, Zhiganskiy district, Momskiy district, Nizhnekolymskiy district, Olenekskiy district, Srednekolymskiy ulus, Ust-Yanskiy ulus, Eveno-Bytantayskiy national ulus);

[3] Ukaz Prezidenta RF ot 2 maya 2014 g. N 296 «O sukhoputnykh territoriyakh Arkticheskoy zony Rossiyskoy Federatsii» (s izmeneniyami i dopolneniyami) [Decree of the President of the Russian Federation of May 2, 2014 No. 296 “On the land territories of the Arctic zone of the Russian Federation” (with amendments and additions)]. URL: https://base.garant.ru/70647984/ (accessed 20 January 2023).
[4] AZRF.
[5] AZRF.
[6] AZRF.
[7] AZRF.
[8] AZRF.
[9] AZRF.
[10] AZRF.
[11] AZ indicators are conditional.
[12] AZRF.

9. Chukotka Autonomous Okrug (entire territory of the Okrug [13]).

The chronological scope of the study covers the period from 2013 to 2022. The time boundaries are determined by the fact that the first gubernatorial elections took place on September 8, 2013 in the Chukotka Autonomous Okrug, and the last elections of the Head of the Republic of Karelia at the time of the study were on September 11, 2022.

Methodology

There are different approaches to determining the essence of electoral behavior. The most common in Western theory are: behaviorist with two dominant voting models — sociological [9, Nazarov M.M.; 10, Berelson B., Lazarsfeld P., McPhee W.; 11, Lasarsfeld P.; 12, Berelson B., Lazarsfeld P., Mcphee W.; 13, Lipset, Rocann S.; 14, Lipset S., Rokkan S.; 15, Verba S., Nie N.] and socio-psychological [16, Cambell A.; 17, Converse P.; 18, Convers P.], positivist, based on the principle of rational voter behavior [19, Downs A.; 20, Fiorina M.], and political-communicative or cognitive [21, Malashenko I.V.] approaches. A domestic school of electoral research is also emerging, based on an integrated approach of multifactor analysis in relation to the Russian realities of national and regional practices [22, Gelman V.; 23, Golosov G.V.; 24, Kolosov V.A., Borodulina N.A.; 25, Meleshkina E.Yu.; 26, Turovsky R.F.; 27, Turovsky R.F.; 21, Malashenko I.V.; 28, Mavlikasov A.Kh.; 29, Kochetkova O.; 30, Kynev A.V.; 31, Zhidkin A.P. et al.].

Methodologically, the present study is based on array of static data from the Central Election Commission of the Russian Federation (CEC RF) for the period from 2013 to 2022, when gubernatorial elections took place in the constituent entities belonging to the Russian Arctic.

The units of analysis were defined as:

- electoral turnout;
- ranking of candidates for elective positions by the subject of nomination;
- voting for the so-called “against all” candidate, based on the number of invalid ballots.

The method of clustering was the basis for summarizing the data obtained and summing up the final results of the study.

It is known that all areas of the Murmansk Oblast, the Nenets, Yamalo-Nenets and Chukotka Autonomous okrugs are included in the Russian Arctic. In accordance with the special status of sovereignty and division of powers, gubernatorial elections are not held in the Nenets and Yamalo-Nenets Autonomous okrugs, which became the reason for excluding these regions from the analysis. The electoral districts of the Arctic zone of Russia were counted, their share of the constituent entities of the Russian Federation was determined, and the average values of the AZ territories by federal districts were derived (see Table 1).

[13] AZRF.

Table 1

Arctic zone of the Russian Federation[14]

FD	North-Western FD					Ural FD	Siberian FD	Far Eastern FD	
Subject of the Russian Federation	Murmansk Oblast[15]	Republic of Karelia[16]	Arkhangelsk Oblast[17]	Komi Republic[18]	Nenets Autonomous Okrug[19]	Yamalo-Nenets Autonomous Okrug[20]	Krasnoyarsk Krai[21]	Republic of Sakha (Yakutia)[22]	Chukotka Autonomous Okrug[23]
Number of AZ electoral districts	17	6	13	4	-	-	7	13	7
Share of AZ in the RF constituent entity (%)[24]	100	32	42	17	100	100	10	37	100
Share of AZ in the federal district (%)[25]	48				Elections of the highest official of a constituent entity of the Russian Federation are not be held		10	68	

Electoral turnout

Electoral turnout is one of the most important indicators of voters' interest in elections. Due to the peculiarity of perception of the conducted policies, ranking them by degree of importance, citizens are most active in federal elections, especially in the elections of the President of the Russian Federation. In the case of regional electoral practices, the degree of interest of citizens decreases. This is clearly observed when the dates of federal and regional elections do not coincide.

The study determined the electoral activity of voters in the gubernatorial elections by districts of the Arctic zone of the Russian Federation for the period from 2013 to 2022 (see Fig.).

[14] Source: compiled by the author.
[15] The entire territory belongs to the Russian Arctic.
[16] Six administrative entities belong to the Russian Arctic (Belomorskiy district, Kalevalskiy district, Kemskiy district, Kostomuksha urban district, Loukhskiy district, Segezha district).
[17] Nine administrative entities belong to the Russian Arctic (the city of Arkhangelsk, Mezenskiy district, Novaya Zemlya urban district, Novodvinsk city, Onega district, Primorskiy district, Severodvinsk urban district, Leshukonskiy district, Pinezhskiy district).
[18] Four administrative entities belong to the Russian Arctic (Inta urban district, Usinsk urban district, Ust-Tsilemskiy district).
[19] The entire territory belongs to the Russian Arctic.
[20] The entire territory belongs to the Russian Arctic.
[21] Four administrative entities belong to the Russian Arctic (the city of Norilsk, the Taimyr Dolgano-Nenets district, the Turukhanskiy district, and partially the Evenki district).
[22] 13 administrative entities belong to the Russian Arctic (Abyiskiy ulus, Allaikhovskiy ulus, Anabarskiy ulus, Bulunskiy ulus, Verkhnekolymskiy ulus, Verkhoyanskiy district, Zhiganskiy district, Momskiy district, Nizhnekolymskiy district, Olenekskiy district, Srednekolymskiy ulus, Ust-Yanskiy ulus, Eveno-Bytantaiskiy national ulus).
[23] The entire territory belongs to the Russian Arctic.
[24] From the number of electoral districts.
[25] From the number of electoral districts.

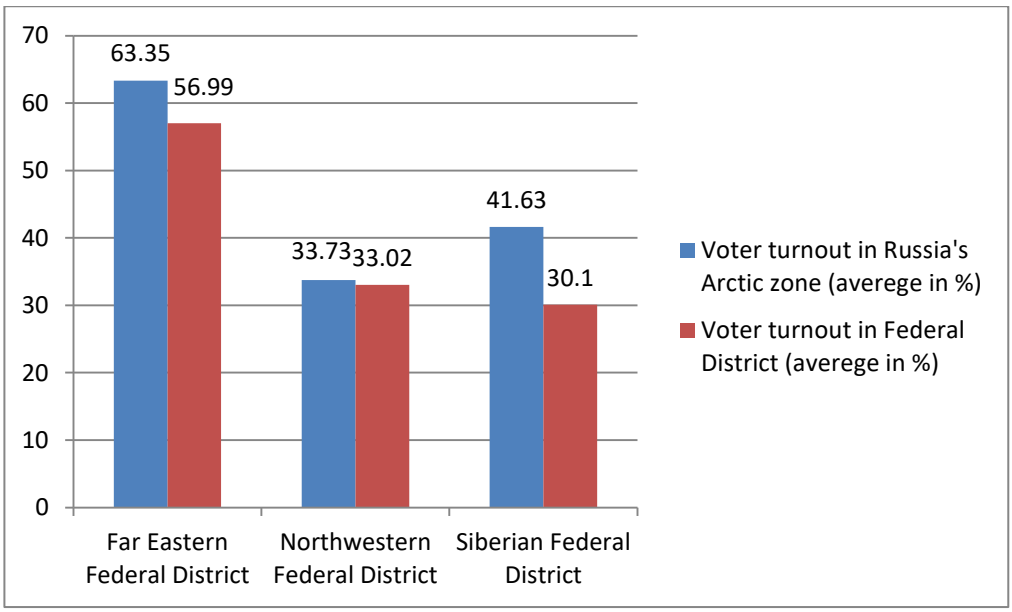

Fig. 1. Electoral turnout in the election of the highest official of a constituent entity of the Russian Federation (2013–2022) (in %) [26].

The data obtained demonstrate that, in comparison with the electoral turnout in the region, in general, there is a higher level of activity of the population living in the AZRF. This is due to the fact that the number of voters in the Arctic regions is small and demonstrates an inversely proportional electoral dependence: the smaller the number of voters, the higher the electoral turnout. At the same time, while in the North-Western Federal District the share differences in voter turnout are insignificant, in the Far Eastern and especially in the Siberian Federal District the data obtained differ markedly. Statistically, this is due to the fact that the share of Arctic regions in the Siberian Federal District is insignificant compared to the North-Western and the Far Eastern federal districts.

The available CEC data for all voting stations in the analyzed subjects of the Russian Federation allowed us to calculate voter activity by AZRF regions (see Table 2).

[26] Source: compiled by the author based on data from the Central Election Commission of the Russian Federation.

Table 2

Electoral turnout in the election of the highest official of a constituent entity of the Russian Federation in the Russian Arctic (2013–2022) (in %) [27]

	2013 [28]	2014 [29]				2015 [30]	2016 [31]	2017 [32]	2018 [33]			2019 [34]	2020 [35]		2022 [36]
Turnout by RF subject	64.44	30.93 [37]	59.06 [38]	52.69 [39]	31.26 [40]	21.00	40.67	29.25	60.17 [41]	50.69 [42]	28.94 [43]	35.83	30.16 [44]	32.65 [45]	27.94
Turnout by AZRF region	64.44	30.93	53.81	65.85	39.25	28.03	37.46	27.88	60.17	62.96	44.01	35.83	27.55	37.80	30.20

It was discovered that in 2014 the indicators of electoral turnout were quite high in the Arctic regions of Komi (53.81%) and Sakha (65.85%), which indicated the interest of the electorate in the election of the highest official in the region.

We believe that this circumstance was due to the following factors:

- reforming the electoral legislation on direct gubernatorial elections in the region [46] and the expiration of the term of office of appointed heads of constituent entities of the Russian Federation;

[27] Source: compiled by the author.
[28] Election of the Governor of the Chukotka Autonomous Okrug.
[29] Elections of the Governor of the Murmansk Oblast, the Head of the Komi Republic, early elections of the Head of the Republic of Sakha (Yakutia), elections of the Governor of the Krasnoyarsk Krai.
[30] Early elections of the Governor of the Arkhangelsk Oblast.
[31] Early elections of the Head of the Komi Republic.
[32] Elections of the Head of the Republic of Karelia.
[33] Elections of the Governor of the Chukotka Autonomous Okrug, early elections of the Head of the Republic of Sakha (Yakutia), elections of the Governor of the Krasnoyarsk Krai.
[34] Elections of the Governor of the Murmansk Oblast.
[35] Elections of the Head of the Komi Republic, Governor of the Arkhangelsk Oblast.
[36] Elections of the Head of the Republic of Karelia.
[37] Murmansk Oblast.
[38] Komi Republic.
[39] Republic of Sakha (Yakutia).
[40] Krasnoyarsk Krai.
[41] Chukotka Autonomous Okrug.
[42] Republic of Sakha (Yakutia).
[43] Krasnoyarsk Krai.
[44] Komi Republic.
[45] Arkhangelsk Oblast.
[46] Federal'nyy zakon ot 12 iyunya 2002 g. N 67-FZ "Ob osnovnykh garantiyakh izbiratel'nykh prav i prava na uchastie v referendume grazhdan Rossiyskoy Federatsii" (s izmeneniyami i dopolneniyami) [Federal Law of June 12, 2002 N 67-FZ "On the basic guarantees of electoral rights and the right to participate in a referendum of citizens of the Russian Federation" (with amendments and additions)]. URL: https://base.garant.ru/184566/89300effb84a59912210b23abe10a68f/ (accessed 18 January 2023).

- the entry of Crimea into the Russian Federation influenced all areas of foreign and domestic policy pursued in the country, which focused the attention of voters in the regions primarily on issues of a national-state nature;
- peculiarities of the political and legal status of the national republics of the country, which are reflected in the implementation of regional policy;
- implementation of the fundamentals of the state policy of the Russian Federation in the Arctic until 2020 and the further prospects [47] and legal regulation of the Arctic zone of the Russian Federation, in accordance with Decree of the President of the Russian Federation of May 2, 2014 No. 296 "On the land territories of the Arctic zone of the Russian Federation" [48].

Another surge in electoral activity was observed in 2018 (see Table 2). As can be seen from the data obtained, AZRF residents participated in voting more actively than for the subject as a whole, which was noticeable in the elections in the Krasnoyarsk Krai and in the Republic of Sakha (Yakutia). In the constituent entities of the Russian Arctic of the Far Eastern Federal District, turnout was one of the highest for the entire period of regional elections under review. We believe that this could be caused by the elections of the President of the Russian Federation held in March 2018 and the active implementation of programs for the comprehensive development of the Far East [49].

However, these factors are still insufficient to judge the electoral preferences of the residents of the Russian Arctic. Thus, as additional variables, it was interesting to study the ranking of votes cast for candidates for the position of the highest official in the region by the subject of nomination, as well as to calculate the percentage of electoral support for the conventionally designated "against all" candidate.

[47] Osnovy gosudarstvennoy politiki Rossiyskoy Federatsii v Arktike na period do 2020 goda i dal'neyshuyu perspektivu (utv. Prezidentom RF 18.09.2008 N Pr-1969) [Fundamentals of the state policy of the Russian Federation in the Arctic for the period until 2020 and further prospects (approved by the President of the Russian Federation on September 18, 2008 N Pr-1969)]. URL: https://base.garant.ru/195720/ (accessed 23 February 2023).

[48] Ukaz Prezidenta Rossiyskoy Federatsii ot 2 maya 2014 g. № 296 «O sukhoputnykh territoriyakh Arkticheskoy zony Rossiyskoy Federatsii» [Decree of the President of the Russian Federation of May 2, 2014 No. 296 "On the land territories of the Arctic zone of the Russian Federation"]. URL: http://www.kremlin.ru/acts/bank/38377 (accessed 22 February 2023).

[49] See, for example, Postanovlenie Pravitel'stva RF ot 6 marta 2018 g. № 232 «O vnesenii izmeneniy v postanovlenie Pravitel'stva Rossiyskoy Federatsii ot 27 dekabrya 2016 g. № 1502» (ne vstupilo v silu) [Decree of the Government of the Russian Federation of March 6, 2018 No. 232 "On amendments to Decree of the Government of the Russian Federation of December 27, 2016 No. 1502" (has not entered into force)]. URL: https://www.garant.ru/products/ipo/prime/doc/71795806/ (accessed 23 February 2023); Postanovlenie Pravitel'stva Rossiyskoy Federatsii ot 30.03.2018 № 362 «O vnesenii izmeneniy v gosudarstvennuyu programmu Rossiyskoy Federatsii «Sotsial'no-ekonomicheskoe razvitie Dal'nego Vostoka i Baykal'skogo regiona» [Decree of the Government of the Russian Federation dated March 30, 2018 No. 362 "On introducing changes to the state program of the Russian Federation "Socio-economic development of the Far East and the Baikal region"]. URL: http://publication.pravo.gov.ru/Document/View/0001201804050012 (accessed 23 February 2023), etc.

Ranking of candidates for elective positions by subject of nomination

The subject of nomination is an important indicator of the electoral process, especially in regions. To convey the will of the state leadership, it is important that the subjects of the Russian Federation elect leaders who are close in ideological and political views, which, in general, reduces the level of conflict in the regions and promotes national unity in matters of domestic and foreign policy.

The analysis has shown that from 2013 to 2022, candidates nominated or supported by the United Russia party won elections in all the subjects of the Russian Federation under study. This trend in the electoral practices of our country is not unique. It is well known that "United Russia" is a party whose ideological positions are close to the current President of the Russian Federation, as V.V. Putin has repeatedly spoken out publicly as its leader. More interesting is the fact that voters in the Russian Arctic voted for candidates from United Russia a little more actively than the average for the subject of the Russian Federation (see Fig. 2).

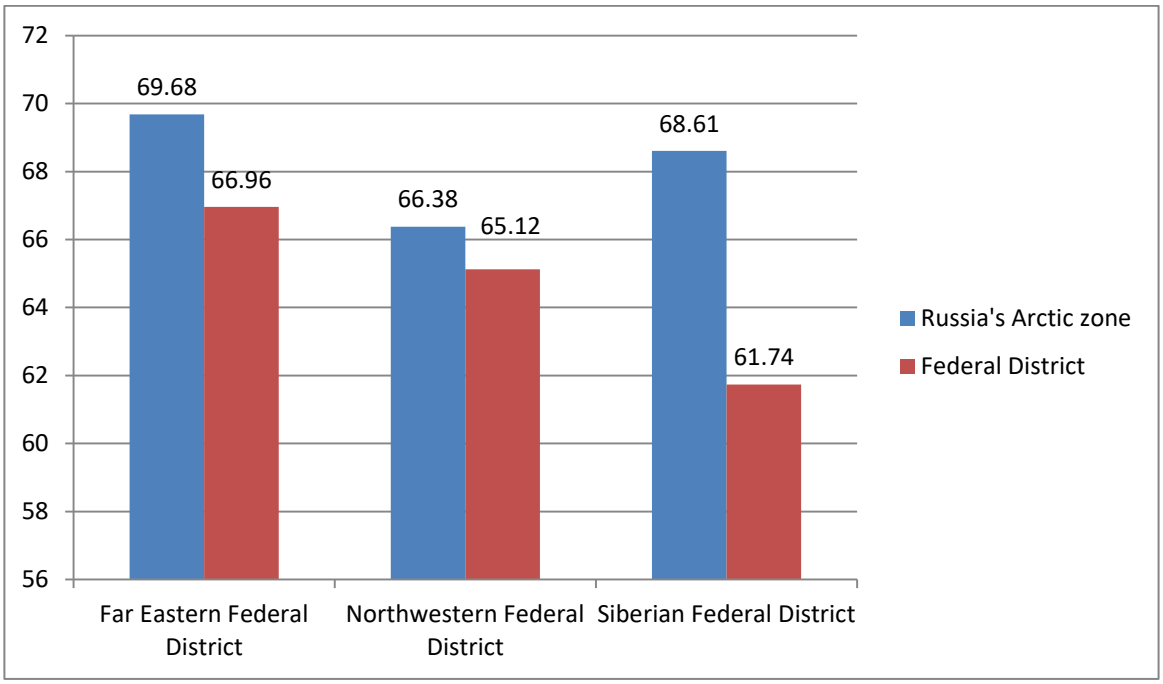

Fig. 2. Electoral preferences for the elected highest official of a constituent entity of the Russian Federation from "United Russia" (in %) [50].

According to the Federal Law of June 12, 2002 No. 67-FZ "On the basic guarantees of electoral rights and the right to participate in a referendum of citizens of the Russian Federation", "In the election of the highest official of a constituent entity of the Russian Federation, a registered candidate who receives more than 50% of votes is considered elected" [51]. The generalized data indicate a confident victory of United Russia candidates in the Russian Arctic regions, receiving

[50] Source: compiled by the author based on data from the Central Election Commission of the Russian Federation.
[51] Federal'nyy zakon ot 12 iyunya 2002 g. № 67-FZ «Ob osnovnykh garantiyakh izbiratel'nykh prav i prava na uchastie v referendume grazhdan Rossiyskoy Federatsii» (s izmeneniyami i dopolneniyami) [Federal Law of June 12, 2002 No. 67-FZ "On the basic guarantees of electoral rights and the right to participate in a referendum of citizens of the Russian Federation" (with amendments and additions). Art. 71, par. 1]. URL: https://base.garant.ru/184566/ (accessed 31 January 2023).

more than 66% of the votes (see Fig. 2). However, in three cases — Arkhangelsk Oblast (13.09.2015 [52]), Republic of Karelia (10.09.2017 [53]), Chukotka Autonomous Okrug (09.09.2018 [54]) — the ranking of electoral preferences was different.

On September 13, 2015, in the early elections of the Governor of the Arkhangelsk Oblast, candidates from five political parties competed for the post of the highest official of the region: "United Russia" (UR), "Liberal Democratic Party of Russia" (LDPR), "Communist Party of the Russian Federation" (CPRF), "Just Russia" (SR) and "Communists of Russia". Igor Anatolyevich Orlov (UR) did not receive an absolute majority of votes in 6 [55] (46.15%) of the 13 polling stations of the Russian Arctic. Moreover, in four cases [56], second place was taken by the LDPR candidate Olga Sergeevna Ositsyna, and in the remaining two [57] — by Vasiliy Nesterovich Pavlov (CPRF). Thus, in 2015, electoral preferences in the Arctic regions of the Arkhangelsk Oblast were not absolute, and this allowed us to conclude that LDPR and CPRF had a fairly stable position in the region.

Representatives from four political parties took part in the elections of the Head of the Republic of Karelia on September 10, 2017: UR, SR, CPRF, LDPR. In one [58] of the six regions of the Russian Arctic, it was also possible to observe the "loss" of the absolute majority of the UR candidate Artur Olegovich Parfenchikov under the majoritarian system. Second place at this polling station was taken by Irina Vladimirovna Petyaeva (SR). A similar situation occurred in the elections of the Governor of the Chukotka Autonomous Okrug on September 9, 2018, where candidates from four parties competed for the mandate of the highest official of the region: UR, LDPR, CPRF, SR. In two [59] of the seven electoral districts of the Russian Arctic, Roman Valentinovich Kopin (UR) did not receive an absolute majority of votes, and in the city of Anadyr he completely lost to Yulia Sergeevna Butakova (LDPR).

Undoubtedly, these interesting cases require additional study and specification from the perspective of the specifics of the regions themselves, which is beyond the scope of this study. At the same time, one should not deny the fact that the electoral preferences of voters in our country in general and in the Arctic zone of the Russian Federation in particular are still influenced by the positions of such political forces as "United Russia", "Liberal Democratic Party of Russia", "Communist Party of the Russian Federation" and "Just Russia / Just Russia – For Truth".

This is confirmed by the analysis of 15 election campaigns in the Arctic regions of the Russian Federation for the period from 2013 to 2022 (see Table 3).

[52] Early elections for governor of the Arkhangelsk Oblast.
[53] Elections of the Head of the Republic of Karelia.
[54] Elections of the Governor of the Chukotka Autonomous Okrug.
[55] Arkhangelsk, Isakogorskaya; Arkhangelsk, Lomonosovskaya; Arkhangelsk, Oktyabrskaya; Arkhangelsk, Solombalskaya; Arkhangelsk Yuzhnaya; Novodvinskaya.
[56] Arkhangelsk, Isakogorskaya; Arkhangelsk, Solombalskaya; Arkhangelsk Yuzhnaya; Novodvinskaya
[57] Arkhangelsk, Lomonosovskaya; Arkhangelsk, Oktyabrskaya.
[58] Loukhskiy district.
[59] Anadyrskaya urban, Bilibinskaya.

Table 3

Ranking of electoral preferences of residents of the Arctic zone of the Russian Federation (2013–2022)[60]

Year	2013[61]	2014[62]				2015[63]	2016[64]	2017[65]	2018[66]			2019[67]	2020[68]		2022[69]
Number of candidates	3	5[70]	5[71]	5[72]	5[73]	5	5	4	4[74]	4[75]	3[76]	6	4[77]	6[78]	5
Voting results by subject of nomination (subject)	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR
	LDPR	CPRF	CPRF	Civic Platform	CPRF	LDPR	LDPR	SR	LDPR	CPRF	LDPR	LDPR	LDPR	SR	Just Russia – For Truth
	SR	SR	LDPR	CPRF	Patriots of Russia	CPRF	CPRF	CPRF	CPRF	SR	SR	CPRF	CPSU	LDPR	CPRF
		LDPR	SR	LDPR	LDPR	SR	SR	LDPR	SR	LDPR		SR	Green Alternative	CPSU	LDPR

[60] Source: compiled by the author.
[61] Elections of the Governor of the Chukotka Autonomous Okrug.
[62] Elections of the Governor of the Murmansk Oblast, the Head of the Komi Republic, early elections of the Head of the Republic of Sakha (Yakutia), elections of the Governor of the Krasnoyarsk Krai.
[63] Early elections of the Governor of the Arkhangelsk Oblast.
[64] Early elections of the Head of the Komi Republic.
[65] Elections of the Head of the Republic of Karelia.
[66] Elections of the Governor of the Chukotka Autonomous Okrug, early elections of the Head of the Republic of Sakha (Yakutia), elections of the Governor of the Krasnoyarsk Krai.
[67] Elections of the Governor of the Murmansk Oblast
[68] Elections of the Head of the Komi Republic, Governor of the Arkhangelsk Oblast.
[69] Elections of the Head of the Republic of Karelia.
[70] Murmansk Oblast.
[71] Komi Republic.
[72] Republic of Sakha (Yakutia).
[73] Krasnoyarsk Krai.
[74] Chukotka Autonomous Okrug.
[75] Republic of Sakha (Yakutia).
[76] Krasnoyarsk Krai.
[77] Komi Republic.
[78] Arkhangelsk Oblast.

		Civic Platform	Right Cause	Russian Party of Pensioners for Social Justice	SR	Communists of Russia	Patriots of Russia					Party of Pensioners		Party of Pensioners	Rodina
												Civic Platform		Green Alternative	
Voting results by subject of nomination (AZRF)	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR
	LDPR	CPRF	LDPR	Civic Platform	LDPR	LDPR	LDPR	SR	LDPR	CPRF	LDPR	LDPR	LDPR	SR	Just Russia – For Truth
	SR	SR	CPRF	CPRF	CPRF	CPRF	CPRF	CPRF	CPRF	SR	SR	CPRF	CPSU	LDPR	CPRF
		LDPR	SR	LDPR	Patriots of Russia	SR	SR	LDPR	SR	LDPR		SR	Green Alternative	CPSU	LDPR
		Civic Platform	Right Cause	Russian Party of Pensioners for Social Justice	SR	Communists of Russia	Patriots of Russia					Party of Pensioners		Party of Pensioners	Rodina
												Civic Platform		Green Alternative	

It is curious that candidates from only two political parties — United Russia and LDPR — took part in all 15 election campaigns, SR — in 13, and CPRF — in 11 campaigns. We believe that in the last two cases the regional activity of parties is not so significant, which may be caused by some internal factors that require additional study. It was also found that the electoral preferences of residents of the Russian Arctic did not coincide with the voting results for the constituent

entity of the Russian Federation in the elections of the Head of the Komi Republic and the Governor of the Krasnoyarsk Krai in 2014, although in other respects the ranking positions were similar (see Table 3).

Determining the specifics of the electoral behavior of residents of the Russian Arctic in the gubernatorial elections of a constituent entity of the Russian Federation, it can be argued that mainly its adherence to the ideas of the main players does not differ from the electoral preferences in the region. However, it is interesting to note how "atypical" candidates from other political parties became more active in different electoral cycles, which in the total amounted to 10 out of 15 cases (66.66%). Moreover, in some regions, their candidates won against representatives from the CPRF, LDPR, SR (in 2014 this happened in the elections in the Republic of Sakha (Yakutia) and in the Krasnoyarsk Krai). It is also curious that out of four registered candidates for the elections of the Head of the Komi Republic in 2020, two belonged to "atypical" political forces (the Communist Party of Social Justice and the Green Alternative), which indicates a weak position of Communist Party of the Russian Federation and Just Russia in the region (see Table 3).

All this forced to pay attention to those voters who came to the elections but did not vote for any of the proposed candidates.

Invalid ballots or voting for a candidate "against all"?

Electoral statistics show that there are invalid ballots at all analyzed polling stations of the Russian Arctic. One can only assume for what reason a citizen at the polling station spoilt a ballot paper.

It is noteworthy that in 2006, by decision of the State Duma of the Russian Federation, the item "Against all" was excluded from the ballot papers [79]. The official justification for this decision was the fact of saving budget funds for re-elections in the event that the candidate "against all" gets more votes than the real candidate with the most votes. However, electoral preferences for a given candidate demonstrate the degree of support for registered candidates. Since the voter does not have the opportunity to vote for a candidate "against all", we assume that one of the reasons for the damage to ballots in the elections under consideration for the head of the highest official in the region is this fact, as well as a possible reason for protest voting, when neither one of the registered candidates did not suit the voter.

In this regard, the average values of the number of invalid ballots at polling stations were determined for the constituent entities of the Russian Federation and regions of the Russian Arctic (see Fig. 3) and the degree of ranking of candidates, taking into account the conditionally desig-

[79] Federal'nyy zakon ot 12 iyulya 2006 g. № 107-FZ «O vnesenii izmeneniy v otdel'nye zakonodatel'nye akty Rossiyskoy Federatsii v chasti otmeny formy golosovaniya protiv vsekh kandidatov (protiv vsekh spiskov kandidatov) [Federal Law of July 12, 2006 No. 107-FZ "On amendments to certain legislative acts of the Russian Federation regarding the abolition of the form of voting against all candidates (against all lists of candidates)]. URL: https://base.garant.ru/12148261/ (accessed 10 February 2023).

nated candidate according to the number of spoiled ballots by the candidate "against all" (see Table 4).

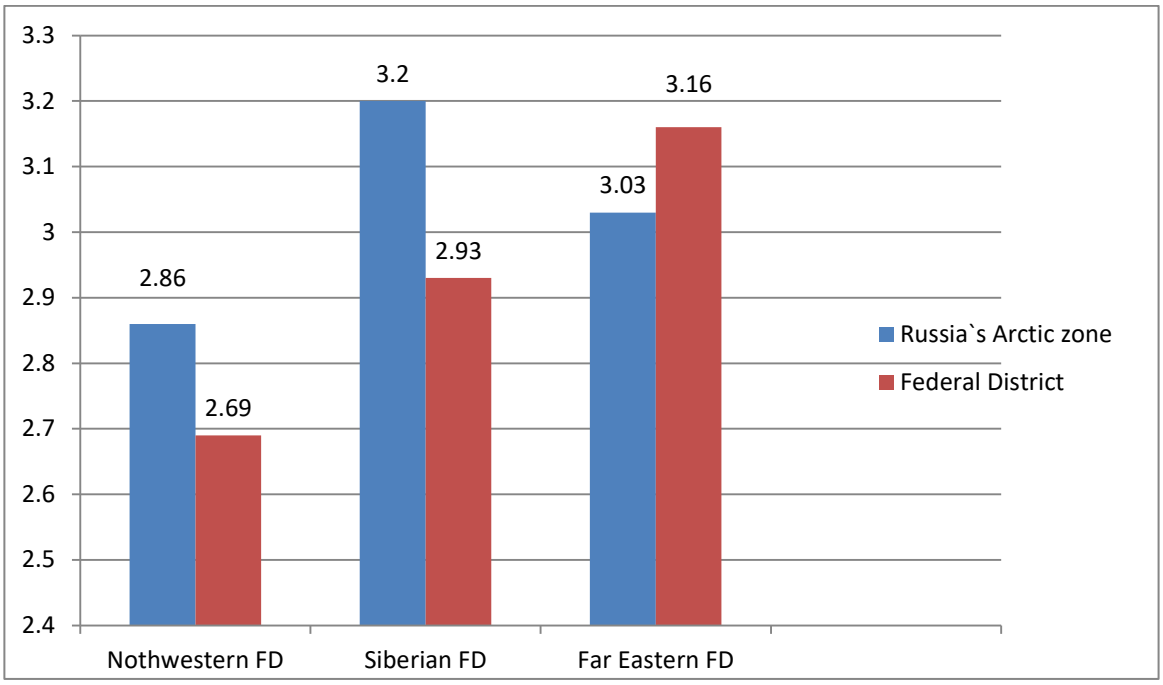

Fig. 3. The number of invalid ballots in the election of the highest official of the constituent entity of the Russian Federation (in %) [80].

Table 4

Ranking of candidates in the gubernatorial elections of constituent entities of the Russian Federation (2013–2022) [81]

FD	North-Western FD									Siberian FD		Far Eastern FD			
Subject of the Russian Federation	Murmansk Oblast		Republic of Karelia		Arkhangelsk Oblast		Komi Republic			Krasnoyarsk Krai		Republic of Sakha (Yakutia)		Chukotka Autonomous Okrug	
Elections	*14.09.2014*	*08.09.2019*	*10.09.2017*	*11.09.2022*	*13.09.2015*	*13.09.2020*	*14.09.2014*	*18.09.2016*	*13.09.2020*	*14.09.2014*	*09.09.2018*	*14.09.2014*	*09.09.2018*	*08.09.2013*	*09.09.2018*
% of invalid ballots (average value)	2.12	3.13	2.79	2.53	2.18	1.54	1.87	4.45	4.55	1.73	4.14	1.87	3.76	2.97	4.06
	2.62		2.66		1.86		3.62			2.93		2.81		3.51	
	2.69									2.93		3.16			

[80] Source: compiled by the author based on data from the Central Election Commission of the Russian Federation.
[81] Source: compiled by the author.

Lost to a candidate "against everyone"	Ranking a candidate "against all"	Number of candidates[83]	% of invalid ballots (average value)[82]			
-	6	6	2.12	2.62	2.86	3.03
5) SR 6) Party of Pensioners 7) Civic Platform	4	7	3.13			
-	5	5	3.68	3.33		
5) LDPR 6) Rodina	4	6	2.98			
-	6	6	2.36	1.88		
7) Green Alternative	6	7	1.40			
6) Right Cause	5	6	1.35	3.62		
6) Patriots of Russia	5	6	4.74			
5) Green Alternative	4	5	4.77			
6) SR	5	6	2.30	3.20	3.20	
-	4	4	4.11			
5) LDPR 6) Russian Party of Pensioners for Social Justice	4	6	1.85	2.55	3.03	2.92
5) LDPR	4	5	3.26			
-	4	4	2.97	3.51		
-	5	5	4.06			

Although the number of invalid ballots was slightly higher in the AZRF regions in general compared to other polling stations in the constituent entities of the Russian Federation, AZ residents in the Far Eastern Federal District were less likely to spoil ballots than in other districts, thus demonstrating a more loyal attitude towards registered candidates.

In addition, the data obtained made it possible to determine the level ratio of indicators of invalid ballots to the number of votes for real candidates:

- low (from 0.00% to 1.99%);
- average (from 2.00% to 2.99%);
- high (from 3.00% or more).

The calculated average values of the number of invalid ballots for the subjects of the Russian Arctic by federal districts demonstrate the distribution of the attribute as high in the Siberian

[82] Arctic zone of the Russian Federation.
[83] Taking into account the candidate "against all".

and Far Eastern Federal Districts and medium in the Northwestern Federal District. We believe that this may be caused by the public's attention to issues of regional policy pursued in the constituent entities of the Russian Federation, and possible problems of a geopolitical and national nature in the Arctic zone of the Russian Federation.

It was also noted that in the overwhelming majority of cases, the percentage of invalid ballots in the regions of the Russian Arctic in the first elections was lower than in subsequent ones, with the exception of the Arkhangelsk Oblast and the Republic of Karelia. In addition, the average number of invalid ballots in the elections of the Head of the Komi Republic in 2014 was the lowest compared to other regions of the Russian Arctic, and in 2020, on the contrary, the highest, which together led to the highest average values of the number of invalid ballots in elections in the northwestern republic.

However, based on the number of voters and electoral turnout in the regions of the Russian Arctic, it was not possible to identify the dependent variable of such a quantitative distribution of the attribute. Therefore, the research focused on the electoral preferences of the residents of the Arctic zone of the Russian Federation. A conditionally designated "against all" candidate was added to the number of registered candidates, based on the number of invalid ballots, and his place in the ranking was determined (see Table 4). As it turned out, the candidate "against all" took the last place only in 6 cases out of 15, in another 6 cases he was second to last, and in 3 cases he surpassed the real candidates in more than two points. Thus, it was possible to identify those political parties that have a vulnerable position in the regions of the Russian Arctic. Along with political forces unpopular among the population, this list included in two cases candidates from "Just Russia" (14.09.2014 — elections of the Governor of the Krasnoyarsk Krai; 08.09.2019 — elections of the Governor of the Murmansk Oblast) and in three cases — candidates from the "Liberal Democratic Party Russia" (14.09.2014 and 09.09.2018 — elections of the Head of the Republic of Sakha (Yakutia); 11.09.2022 — elections of the Head of the Republic of Karelia). Despite the small number of cases, attention is drawn to the fact that position of the LDPR is more weakened in the national republic, and position of "Just Russia" — in the region and territory. In part, this allows us to recommend that the leadership of political parties pay more attention to the policies pursued in the regions, especially in the Russian Arctic, and also take into account the administrative status of the Arctic subject in their activities.

Conclusion

By means of multifactor analysis using clustering methodology, it was possible to construct an electoral model of a resident of the Arctic zone of the Russian Federation in the gubernatorial elections in the region. The following comparative indicators were identified:

- electoral turnout;
- voting for a typical candidate (in Russia, this is a candidate nominated by United Russia);

- voting for an atypical candidate (in Russia, this is a candidate nominated by any other political party except United Russia);
- voting for a conditionally designated candidate "against all" as a marker of legitimate support for registered candidates and/or protest voting (see Table 5).

Table 5

Electoral model of the voter in the gubernatorial election of the constituent entity of the Russian Federation (2013–2022)[84]

No.	Indicator	Constituent entity	AZRF
1	Electoral turnout	1	> 1
Electoral preferences			
2	Voting for a typical candidate	1	> 1
3	Voting for an atypical candidate	1	< 1
4	Conditional voting for a candidate "against all"	1	> 1

If we take the value in accordance with the norm as "1", the electoral model of a resident of the Russian Arctic in the election of the highest official in the region is above the norm in three out of four indicators. Compared to voters of territories containing regions belonging to the Arctic zone, residents of the Russian Arctic more actively participate in regional elections, giving their preferences to candidates from United Russia. At the same time, the number of invalid ballots in the Arctic regions is higher than in the constituent entities of the Russian Federation. When implementing regional policy and especially in electoral practices, one should take into account such a distribution of characteristics in the political behavior of residents of the Russian Arctic.

At the same time, in some regions of the Russian Arctic, a different distribution of characteristics is observed (see Table 6).

Table 6

Electoral model of a resident of the Arctic zone of the Russian Federation in the election of the highest official of a constituent entity of the Russian Federation (2023–2022)[85]

No.	Constituent entity of the Russian Federation	AZRF region	Electoral turnout	Voting for a typical candidate	Voting for an atypical candidate	Conditional voting for a candidate "against all"
Far Eastern Federal District						
1	Republic of Sakha (Yakutia)	13 — Abyiskiy ulus, Allaikhovskiy ulus, Anabarskiy ulus, Bulunskiy ulus, Verkhnekolymskiy ulus, Verkhoyanskiy district, Zhiganskiy district, Momskiy district, Nizhnekolymskiy district, Olenekskiy district, Srednekolymskiy ulus, Ust-Yanskiy ulus, Eveno-Bytantayskiy national ulus	> 1	> 1	< 1	< 1
2	Chukotka Autonomous Okrug	Chukotka Autonomous Okrug	1	1	1	1

[84] Source: compiled by the author.
[85] Source: compiled by the author.

North-Western Federal District						
3	Arkhangelsk Oblast	9 — Arkhangelsk city, Mezenskiy district, Novaya Zemlya urban district, Novodvinsk city, Onega district, Primorskiy district, Severodvinsk urban district, Leshukonskiy district, Pinezhskiy district	> 1	> 1	< 1	> 1
4	Murmansk Oblast	Murmansk Oblast	1	1	1	1
5	Republic of Karelia	6 — Belomorskiy district, Kalevalskiy district, Kemskiy district, Kostomuksha urban district, Loukhskiy district, Segezhskiy district	> 1	> 1	< 1	> 1
6	Komi Republic	4 — Vorkuta urban district, Inta urban district, Usinsk urban district, Ust-Tsilemskiy district	< 1	> 1	< 1	1
Siberian Federal District						
7	Krasnoyarsk Krai	4 — Norilsk city, Taimyrskiy Dolgano-Nenets district, Turukhanskiy district, partially Evenki district (10 rural settlements)	> 1	> 1	< 1	> 1

First of all, this concerns the Murmansk Oblast and the Chukotka Autonomous Okrug, the entire territories of which belong to the Russian Arctic, and the data obtained can determine the criteria for the electoral model of an Arctic resident in the election of the highest official in the region. In addition, two more cases with a different distribution of the trait were identified. In the Arctic regions of Yakutia, the percentage of invalid ballots is lower than throughout the republic, which indicates a more tolerant attitude towards registered candidates on the part of residents of the Arctic zone of the region. While in Komi this indicator coincides with the electoral preferences of voters in the region, the electoral turnout of residents of the Arctic zone is lower than in the republic as a whole.

Taking into account the data obtained, a separate study of regional cases is required using not only statistical quantitative parameters, but also qualitative methods. We believe that the study of the characteristics of the socio-economic state of the Arctic, the human and resource potential of the region will make it possible to explain the reasons for the electoral behavior of residents of the Russian Arctic in the election of the highest official of a constituent entity of the Russian Federation.

The conflictual nature of modern international relations, the ongoing sanctions regime against Russia, and the migration outflow from the Arctic zone of the Russian Federation complicate the implementation of investment projects in the region and, to a certain extent, increase research attention on the interdisciplinary scientific study of the Russian Arctic, especially at the level of specific regions.

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Policy of the Republic of Korea in the Polar Regions in 2023–2033

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Abstract. This article reviews the current state of the Arctic policy of the Republic of Korea, which, like other states, has increased interest in the Arctic region in recent years, as well as its plan of activities in the Arctic and Antarctic for the coming years. The Republic of Korea needs to gradually develop an Arctic strategy at the government level to promote national interests in the Arctic region. The scientific significance of the article is related to the translation into Russian and analysis of the "Polar Activities Promotion Act for 2023–2027", published in February 2023 by the Korean Institute of Marine Science & Technology Promotion. The article discusses the content and timing of the country's 3 main polar policies: research and discovery, climate change forecasting, and polar development. In addition, 5 main strategies for promoting the Republic of Korea in the polar region are discussed, including: expanding the area of research of the territory, developing plans to solve environmental and climate problems, creating a polar industrial base, creating a network of cooperation with foreign countries and between industrial and scientific organizations within the country, developing an interstate dialogue on polar activities.
Keywords: *Republic of Korea, Arctic Council, Arctic policy, Arctic cooperation, Arctic, Antarctic, economic and scientific activities in the Arctic and Antarctic*

Introduction

In recent years, many states have increased their interest in the Arctic region. This is caused by the weakening of geopolitical disputes between the Arctic states and the opening of opportunities for exploration and development of the Arctic for non-Arctic states due to the end of the Cold War; melting glaciers resulting from climate change, which facilitated passage to the Arctic; as well as scientific and technological progress, which made it possible to study and develop a region with complex and harsh natural conditions [1]. The relevance of Arctic research is associated with its strategic importance for the world community. The reasons for the global importance of Arctic research include the growing demand for rare-earth metals and hydrocarbons [2, pp. 40–43], transport and logistics potential of the Northern Sea Corridor and the Northwest Passage, connecting the Pacific and Atlantic oceans [3, pp. 960–973], as well as the impact of global climate change on the Arctic [4, pp. 6–13].

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Among the non-Arctic countries increasing their presence in the region, one of the important players is the Republic of Korea. Its interest in the Arctic region is caused by the geopolitical situation on the Korean Peninsula, which excludes land links with Eurasia. The Republic of Korea is more often seen as an island state dependent on air and sea connections [5]. Due to economic reforms since the 1960s, the country's economy has grown significantly. Its level of dependence on national foreign trade is about 90% and the share of shipping in trade volume is about 99.7% [1]. In addition, the country's economy is 95% dependent on imported energy sources [2]. Obviously, Korea is most interested in the Northern Sea Route, which will allow the country to reduce the cost of transporting goods and the time of their delivery [6]. Korea's highly developed shipbuilding industry has a special economic potential, which can satisfy the demand of other participants of the Arctic development for marine vessels and platforms for mining in harsh Arctic conditions [7, p. 69].

The economic growth of the Republic of Korea, dependent on foreign trade and energy resources, and its geographic location are the reasons why it is beneficial for Korea to increase its presence in the Arctic region.

Plan

In February 2023, the Korea Institute of Marine Science & Technology Promotion published the "Plan for Stimulating Activities in the Polar Regions in 2023–2027", which outlines Korea's prospects and plans for the development of the Arctic and Antarctic until 2033 [8, pp. 2–6]. The plans are divided into 3 areas: research and discovery, climate change forecasting and development of the polar regions.

According to the strategic plan for 2027, the "research and discovery" direction includes the construction and use of a new generation icebreaker with a displacement of 15 thousand tons. In addition, it is planned to select the optimal location of the base and scientific staff for conducting internal research of Antarctica. By 2032, Asia's first initiative for joint international exploration of the North Pole and the opening of a sixth inland base in Antarctica are planned.

The direction of "climate change forecasting" involves increasing the accuracy of meteorological readings at the North Pole to 60% by 2027 and predicting ocean level rise to 70% by 2050, compared to advanced countries. By 2032, it is planned to increase accuracy to 90% and 100%, respectively. By 2025, it is planned to develop ultra-small satellites to monitor changes in ice cover in the Arctic.

The direction "development of the polar regions" implies the creation of a new polar industrial base. By 2027, it is planned to create new technologies for the construction of environmental-

[1] Share of imports and export in gross national income (GNI) in South Korea from 2009 to 2018. URL: https://www.statista.com/statistics/642175/south-korea-foreign-trade-share/ (accessed 10 May 2023).
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ly friendly icebreaking container ships, as well as the development of the new medicines for the treatment of dementia and cancer from natural Arctic raw materials.

By 2032, it is planned to build environmentally friendly icebreaking container ships and operate the Northern Sea Route. By this year, it is also planned to create and provide new bactericidal and immunomodulatory drugs.

Promotion strategies

In order to achieve the set goals, the document establishes 5 main promotion strategies:

- expansion of the area of study of the territory;
- development of plans to address environmental and climate issues;
- creation of a polar industrial base;
- establishing of a network of cooperation with foreign countries and between industrial and scientific organizations within the country;
- development of interstate dialogue on polar activities.

Expansion of the area of study includes studying the ecosystem of the Ross Ice Shelf until 2024 and promoting the study of new protected natural areas.

Development of plans to address environmental and climate issues involves promoting international exploration of high Arctic waters using new generation research vessels and developing technologies for long-term monitoring of changes in the Antarctic ecosystem and fisheries resources in conjunction with The Arctic Ocean Fisheries Agreement in 2023, as well as promoting international cooperation in order to protect marine biological resources in the Arctic Ocean by 2024. By 2025, it is planned to study the ice cover of Antarctica using aerial reconnaissance, study plastic debris at the South Pole and search for dangerous microorganisms entering the ecosystem from melting glaciers. Polar surveying and mapping, investigating the impact of methane emissions into the atmosphere, contributing to a comprehensive assessment of the ecosystem in Antarctica's marine protected areas and participating in the establishment of new protected areas are expected by 2026. Restoration of climate history and search for unknown life by drilling through ice sheets and marine sediments, development of Arctic Ocean marine ecosystem change scenarios and enhanced response to environmental threats in the Arctic Ocean are planned by 2027, sea ice observation by microsatellite — by 2028, and development of global sea level rise scenarios and coastal inundation risk assessment — by 2031. In addition, there are plans to assess the effectiveness of the conservation of specially protected natural areas, promote environmental protection and study new protected areas in an indefinite period of time.

Creation of a polar industrial base includes the development of information systems for Arctic shipping, the development of modular energy technologies for polar conditions in 2023. By 2024, it is expected to develop technologies for ship maintenance in polar conditions, develop routes for Korean ships to travel the Arctic route, adapt agricultural technologies for Arctic conditions, jointly develop specialized equipment with businesses and Arctic campaigners, and develop

clean energy technologies. Development of antimicrobial agents and immunomodulators using polar bioresources is planned in 2025–2029; and by 2025 — development of small-sized modular reactors as a power plant for ships sailing along the Northern Sea Route; development of cosmetics using algae from the polar seas and cultivation of fish resistant to low temperatures. Development of autonomous research equipment for the study of polar resources is expected by 2026; creation of environmentally friendly ships for shipping in the Arctic Ocean — by 2027. By 2030, it is planned to launch a new generation icebreaker with a displacement of 15 thousand tons and prepare for the construction of the sixth inland station in Antarctica. It is also planned to promote support for the certification of the Mediterranean Shipping Company for fishing in the Arctic for an indefinite period of time.

Establishing a network of cooperation with foreign countries and between industrial and scientific organizations within the country implies the creation of an intergovernmental council on polar policy, strengthening the network of industrial enterprises operating in the Arctic and supporting demand for their products, expanding joint production with Arctic states, strengthening the functions of the polar diplomatic forum “Arctic Club in Korea”, supporting the indigenous peoples of the Arctic and consolidating the status of the three largest Arctic forums within the framework of the Arctic Cooperation Week in 2023. By 2024, expanding bilateral dialogue with Arctic countries and establishing the Seoul Antarctic Forum are planned; promoting a conference with the science ministers of the Arctic states in Korea — by 2026, and holding the 49th Arctic Treaty Conference in the Republic of Korea — by 2027.

Development of interstate dialogue on polar activities implies the expansion of research infrastructure for joint use, the construction of a center for reproduction of the local environment, and the creation of the Polar information system in 2023–2026. In 2023, the development of an annual plan for the training of polar specialists, the creation of an information platform for U-Arctic graduates, and the allocation of scholarships for polar research training are anticipated. Holding the Arctic Council competition, expanding international exchange, and promoting the polar brand are expected from 2024. By 2027, it is planned to create a polar medical center. In addition, it is planned to train masters and doctors of science on the basis of the UST-School, service personnel, provide safety trainings and develop training programs for professional teachers, develop medium- and long-term strategies for promoting polar policy, prepare textbooks, manuals and individual educational programs on polar standards.

Conclusion

The published plan is fully consistent with the Korean Law “On the Promotion of Activities in Polar Regions” adopted in 2021 and is a continuation of previous polar plans. Over the past few decades, the economy of the Republic of Korea has become one of the largest in the Asia-Pacific region, which, coupled with the current geopolitical situation on the Korean Peninsula, is forcing the country to seek new transport and logistics opportunities, as well as a new source of resources

to meet the needs of a rapidly growing economy: the country's access to resources is limited, and the Northern Sea Route will reduce the length of the route and delivery time between the West and Korea. The highly developed Korean shipbuilding industry, which is capable of meeting the demand of other participants in Arctic development, also has economic potential. In addition, the country contributes to environmental conservation and the fight against climate change through research and investment. Korea began working in this direction several decades later than other countries, but the new plan for activities in the polar regions is designed to significantly expand the country's presence in the Arctic and Antarctic and take a place on a par with leading countries.

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Features and Perspectives of NATO`s Strategic Penetration into the Arctic: The Norwegian Dimension

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Abstract. Military-strategic penetration into the Arctic is becoming one of the key attributes of global capability for influential international players. The point applies not only to the most powerful states, but also to NATO as main keeper of military tools of the West. The article tries to identify and explore the scheme of NATO`s strategic penetration into the Arctic Ocean. It is noted that the role of its support is assigned to Norway, the reasons for the consensus on this issue between the United States and the leading NATO member states in Western Europe are identified. The paper assesses the strengths of Norway's armed forces and identifies the bottlenecks that require support from NATO partners as they attempt multilateral penetration into the Arctic. Functionally, the Alliance's anchoring scheme consists of three main elements. The first one is a section of the Russian Federation's "containment" system in Finnmark. Here, the key role is assigned to the main forces of Norwegian troops with the practice of their operational reinforcement by the troops of NATO partners. In turn, the latter are ready to take an increased load in strengthening the second element. This is the coastline from Trondheim in the south to Tromsø, with the support of bases on which the strategic penetration into the Arctic Ocean (the third element) is carried out. This is ensured by the growing co-operation between the Norwegian Navy and interested NATO member states.
Keywords: *Arctic, Norway, North Atlantic Alliance, USA, UK, Germany, Finnmark, military exercises, military groups, Norwegian sea*

Introduction

The growing interest in the Arctic Ocean (AO) on the part of a growing number of players is one of the main trends in the development of the world in the 21st century. The reasons include not only the presence of huge reserves of various natural resources in the Arctic and its logistical value, especially in the context of global warming. The strategic, i.e. military component, penetration, and even more so, a strengthening in the Arctic is becoming an increasingly mandatory attribute for the most influential states to realize their power ambitions. This situation increasingly applies to NATO, a full-fledged military bloc representing the most influential and institutionally well-established mechanism of "liberal democracies" in the field of security and defense.

The North Atlantic Alliance was conceived, created and developed during the previous Cold War as a structure aimed at building confrontation with the participation of the West in a paradigm beneficial to the latter. In the 1990s – early 2010s, the new main meaning for the trans-

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formed NATO was the fight against threats and challenges of instability. This was accompanied not only by the active expansion of the Alliance in using its potential beyond the area of responsibility (primarily in the Middle East), but also by movement along the path of globalization of activities. The full return of the West to building systems of "containment" of influential opponents [1, Braterskiy M.V.] — primarily the Russian Federation (since 2014), as well as the PRC and Iran [1] — had very noticeable consequences for NATO. The organization's role in the strategic planning system of "liberal democracies" has once again increased dramatically, which was naturally accompanied by a sharp increase in the Alliance's resource capabilities. The focus of increased attention on "containing" the Russian Federation, coupled with the impossibility of accepting the role of security provider for the unstable states of the Near and Middle East (as the case of Afghanistan clearly showed [2, Novikova O.N., pp. 221–226]) created a significant difficulty for NATO — the search for geographically and functionally new options for the globalization of activities. These were the Alliance's involvement in the "containment" of the PRC, already carried out by the USA and a group of its partners in the Indo-Pacific region, and the strategic penetration into the Arctic under the auspices of the bloc. However, if in the first case (the issue of countering the PRC) the use of NATO was met with the actual unpreparedness of a number of participating countries for this (primarily Germany and France) [3, Arzamanova T.V.], then in the second, on the contrary, there was a broad consensus.

The ratio of military-strategic potentials and the influence of players in the Arctic Ocean is becoming one of the important indicators of the paradigm of the newly formed world order. Its nature will be fundamentally determined by the relationship between the West and non-West countries. The second community is still at the initial stage of its structuring. The first one (as the camp of "liberal democracies") was formed a long time ago, but is now undergoing a phase of partial internal restructuring. One of its components is ensuring multi-aspect multilateral coherence of the actions of NATO member countries in the Arctic, including at the level of the Alliance as an organization.

The factor of the special military operation (SMO) of the Russian Federation temporarily reduced the Alliance's military-strategic attention to the Arctic in informational, but not in practical terms. Thus, half of the 6 largest (involving at least 15 thousand military servants, i.e. the equivalent of a full division) single and dual [2] exercises were conducted in Norway and adjacent waters. These are *Trident Juncture 18* (involving 50 thousand soldiers and officers) [3], *Cold Response 22* (30 thousand participants) [4], *Joint Viking 23/Joint Warrior 23* (20 thousand military

[1] NATO 2022 strategic concept. Adopted by Heads of State and Government at the NATO Summit in Madrid 29 June 2022. Brussels: NATO HQ, 2022. Pp. 3–5.
[2] Two (or more) exercises, chronologically parallel, conducted in the same direction and to practice a single task, for which a general indicator of the number of troops is given.
[3] Trident Juncture 2018. NATO. 7.11.2018. URL: https://www.nato.int/cps/en/natohq/157833.htm (accessed 05.05.2023).
[4] Cold Response 2022. Forsvaret. 17.11.2022. URL: https://www.forsvaret.no/en/exercises-and-operations/exercises/cr22 (accessed 05 May 2023).

servants involved) [5]. It should be emphasized that all of the above-mentioned 2022–2023 exercises were conducted after the start of the Russian Federation's SMO. The scale of each of these maneuvers is significant not only in comparison with other significant NATO exercises and taking into account the significantly reduced number of national armed forces since the previous West-East confrontation, but also with regard to natural and climatic realities. The complexity of support and the combat value of engaging a single soldier in the harsh subarctic and arctic environment is much higher than in Eastern Europe or the Mediterranean.

The purpose of the article is to reveal the features and prospects of NATO's military-strategic penetration into the Arctic in relation to the realities of the late 2010s – early 2020s. Foreign and domestic researchers are paying more and more attention to the situation in the Arctic in relation to security and defence in general, the policies of Russia [4, Zhuravel V.P., Timoshenko D.S.], NATO member states, primarily those having access to the Arctic Ocean [5, Paul M.] — primarily the USA [6, Paul M.; 7, Kuchinskaya M.E.; 8, Raikov Yu.A.] and Norway [9, Dzyuban V.V.; 10, Konyshev V.N., Sergunin A.A.; 11, Zhuravel V.P.]. At the same time, it is the multilateral activities of the Alliance member countries, especially with its involvement as an organization, that have not yet found such detailed coverage, particularly in relation to modern realities. When building the methodological basis of the work, the author relied on the provisions of the theories of alliances [12, Istomin I.A.] and the construction of the armed forces [13]. The comparative and event analysis methods were used in the work.

Choosing Norway as NATO's springboard for Arctic penetration

In the second half of the 2010s, an informal consensus within NATO on the issue of assigning Norway the role of the main recipient of the Alliance's multilateral military capabilities in the sub-Arctic and Arctic zones became apparent in practice. What explained the agreement on this issue between the North American and European participating countries, especially the leading ones?

The United States was not ready to provide military access to Alaska for its Alliance partners. For official Washington, such a step would not strengthen its position in NATO, but would demonstrate a certain dependence on the European member states of the Alliance. This issue was all the more sensitive for the White House at a time when it was striving to strengthen its position within the "collective" West and especially the Euro-Atlantic community. This was the common denominator for the administration of D. Trump in his desire for hard hegemony and of J. Biden with his characteristic movement towards soft hegemony. It is indicative that the United States has always made a noticeable (often determining or directing) contribution to almost all significant NATO military exercises in Europe, but official Washington itself has almost never involved partner contingents in organizing maneuvers on its own territory.

[5] Major exercises demonstrate NATO Allies' readiness. NATO. March 13, 2023. URL: https://www.nato.int/cps/en/natohq/news_212791.htm?selectedLocale=en (accessed 05 May 2023).

The White House was interested in such an ally from the NATO member countries located on the coast of the Arctic Ocean, with which there would be no noticeable disagreements on the Arctic as a whole and which would be ready to participate in "containing" Russia in the Far North in close agreement with the United States, recognizing its leading role and taking into account the peculiarities of its resource capabilities. Since the formation of the camp of "Western democracies" (in the late 1940s), official Washington has had fairly strong and extensive ties in the field of defense and security with Canada and Denmark. In particular, there are US military units on the Greenland Island belonging to the latter (first of all, at the Thule base). At the same time, the quality and volume of official Washington's co-operation with both Ottawa and Copenhagen on the Arctic track is significantly lower than the potential volume. Canada was very sensitive to the US probing of the issue of the internationalization of the Northwest Passage, Denmark — to D. Trump's idea of purchasing Greenland in August 2019 [6]. It is significant that the initiative of the 45th President of the United States, without taking into account the most characteristic manner of presentation, did not cause any noticeable condemnation from the opponents of the country's establishment.

Such problems were absent in US relations with Norway of the second half of the 2010s. The latter met the above criteria to the greatest extent in geostrategic terms. While Alaska (as part of the US possessions) "bordered" Russia's possessions in the Arctic on the eastern side, Norway was on the western side. This created the basis for countering the Russian Federation in the Arctic from two sides — in the Western and Eastern hemispheres, respectively. When building a system of "containment" of Russia (as well as of the Soviet Union earlier), the US has traditionally sought to ensure the closest cooperation with the most eastward NATO partners: the closeness with Germany in the previous West-East confrontation and with Poland and the Baltic States in the present-day confrontation is indicative. Compared to the 1950s–1980s, since mid-2010s, there has been a noticeably higher US interest in rapprochement not only with Norway, but also with Sweden and Finland, gradually growing into support for the latter's entry into NATO. This was due to a wide range of reasons. Firstly, compared to 1989, the border of NATO's zone of responsibility has sharply moved eastwards. The expansion of the Alliance to an array of Eastern European states, especially Poland and the Baltic republics, led to a "spillover effect": the strengthening of the positions of the USA and the Alliance in conditionally neutral Sweden and Finland was perceived as a necessity to cover NATO's new forward zone of responsibility from the north — as a result, the territories of the official Helsinki (de jure from April 4, 2023 [7]) and Stockholm became part of it. Secondly, unlike the previous confrontation with the USSR and its allies, in the conditions of the new confrontation (with the Russian Federation since 2014), the USA and the leading

[6] Trump confirms he is considering attempt to buy Greenland. August 18, 2018. URL: https://www.theguardian.com/world/2019/aug/18/trump-considering-buying-greenland (accessed 05 May 2023).
[7] Press statement by NATO Secretary General Jens Stoltenberg with the President of Finland, Sauli Niinistö. NATO. April 4, 2023. URL: https://www.nato.int/cps/en/natohq/opinions_213464.htm?selectedLocale=en (accessed 05 May 2023).

"Western democracies" were confident in greater controllability of the process, i.e. in their ability to regulate the level of tension, control escalation in case of its occurrence [1]. One illustration of this is the supply of arms and military equipment by the participating countries to official Kyiv, which is increasing in terms of the number of units and their striking power, especially against the backdrop of the SMO. This confidence (largely illusory) in controlling the course of the confrontation in the most dangerous areas (Ukraine and Eastern Europe) meant the possibility of greater attention to other areas, including the Arctic. Thirdly, this is the already noted noticeable increase in the geostrategic value of the latter in conjunction with the enhanced capabilities to operate military resources there compared to the 1950s–1980s.

It is very important that in Norway, unlike Greenland or Canada's northern possessions, it was logistically relatively easy and quick to transfer large multimodal, including ground contingents from other European NATO members, especially Germany, Great Britain, and France. They, primarily official London and Berlin, had very trustful relations with Oslo. Moreover, in the case of Germany, the factor of historical memory (the defeat and occupation of Norway by the Third Reich in 1940–1945) did not become a noticeable spoiler on the path to building an advanced alliance even during the previous West-East confrontation. Accordingly, for the leading Western European NATO member states, which were the most ready and interested in coordinated progress in the Arctic, Norway seemed to be a more valuable partner than Denmark and Canada. Thus, in the field of security and defense, official Copenhagen, being an EU member state, refrained from participating in the PESCO platform (Permanent Structured Cooperation, PSC) — almost the key mechanism to ensure the "strategic autonomy" of the European Union [14, Nikitin A.I.]. The PSC was launched in 2017, with project committees as its main structural unit; their number increased noticeably, and the range of topics has been significantly expanded. All project committees can be divided into two groups: technical-technological (development and launch of production of new types of weapons and military equipment) and functional (increasing the operational and tactical capabilities of specific branches or types of armed forces, the armed forces as a whole in specific segments). Moreover, Norway (along with the USA and Canada) [8] began to show interest in cooperation through a number of PESCO project committees in 2021, although it is not an EU member state. Canada has traditionally been "special" in its contribution to strengthening the European part of NATO's area of responsibility. During the previous Cold War, the official Ottawa contingent here was small (one reinforced brigade) and was the first to withdraw. Canada's acceptance of the role of a "framework nation" in the functioning of the Alliance's multinational Forward Deployment Forces (FDF) battle group in Latvia (since 2017) [9] was rather an exception that only confirmed the general rule. In this case, official Ottawa showed solidarity with its Anglo-Saxon part-

[8] PESCO: Canada, Norway and the United States will be invited to participate in the project Military Mobility. The EU. May 6, 2021. URL: https://www.consilium.europa.eu/en/press/press-releases/2021/05/06/pesco-canada-norway-and-the-united-states-will-be-invited-to-participate-in-the-project-military-mobility/ (accessed 05 May 2023).

[9] NATO's military presence in the east of the Alliance. NATO. December 21, 2022. URL: https://www.nato.int/cps/en/natohq/topics_136388.htm (accessed 05 May 2023).

ners (Washington and London), essentially being forced to play the role that France did not agree to take.

Finally, another reason was the core military capabilities of NATO member states with national sectors in the Arctic Ocean. By the beginning of the 2020s, the United States, while generally possessing a very strong "military machine", did not have any significant Arctic troops, i.e., forces and means equipped and adapted for use in the conditions of the Far North. Of those classified in this category, Denmark had separate small units in Greenland; Canada — a somewhat larger force, the key military unit of which was the 1st Ranger Patrol Group (equivalent to the "core" of a battalion tactical group, BTG) [10]. Norway had the largest and best-organized Arctic troops: their basis was the North brigade (9 battalions, including 6 combat ones) [11].

Historical experience of using Norway as a springboard for military-strategic penetration into the Arctic Ocean

In practice, the value of Norway's geostrategic position was clearly demonstrated for the first time during World War II. After the defeat (1940) from the Third Reich, disproportionately large Wehrmacht forces (taking into account the size of the civilian population and natural and climatic conditions) were stationed in the occupied Norwegian territory. Moreover, in fact, it was a question of two large groups. One of them was deployed over the most part of the country (except for Northern Norway) and was multi-service, i.e., composed of naval, army, and air force units. Large forces of surface ships (all classes up to battleships) and submarines, and naval aviation were intended primarily to fight allied convoys heading to the USSR, its Northern Fleet and the British Navy [12]. Accordingly, relying on Norwegian ports, the Kriegsmarine repeatedly visited the waters of the Arctic Ocean, even very remote from the continent. Large ground forces were stationed along the coast of Norway, gradually expanding as the risk of an allied landing increased: if in the summer of 1940 there were 7 divisions [15, p. 319], by 1944 there were already 13 divisions [16, p. 20]; that is, the local coast was covered in many ways better than the occupied one in France. It is indicative that of all the groupings of Hitler's troops, the one in Norway was the last to surrender, de facto, after the signing of the act of unconditional surrender. Another grouping was the army "Norway" (since 1942 — "Lapland"), initially (by June 22, 1941) concentrated in the north of Norway (in Finnmark) and the north of Finland. This grouping (6 divisions) generally unsuccessfully tried to attack on the Kola Peninsula, with the main goal of capturing Murmansk and Polyarnyy [13]. The defeat of this group by the Red Army during the Petsamo-Kirkenes operation (October 7–29, 1944) led to the liberation of part of the Norwegian Finnmark [17, Shtemenko

[10] Canadian Armed Forces sharpen cold weather skills above the Arctic Circle, alongside NATO Allies and partners. NATO. March 17, 2019. URL: https://www.nato.int/cps/en/natohq/news_165265.htm?selectedLocale=en (accessed 05 May 2023).
[11] Norwegian Armed Forces in transition. Strategic defence review by the Norwegian chief of defence. Abridged version. Oslo, 2015. P. 15, 17.
[12] Atlas ofitsera [Atlas of an officer]. Moscow, Military Topographical Directorate of the General Staff of the USSR Armed Forces, 1974, p. 276
[13] Ibid, pp. 252–253.

S.M., pp. 408–411]. The offensive of the Red Army on the remaining parts of the kingdom's territory was not carried out not only due to political circumstances (delimitation of zones of strategic responsibility of the USSR and Western allies). Another reason is the exceptional difficulty of "turning around" from Finnmark to the south across Norway in the sense of using and supplying troops in the mountainous terrain of the Far North, moreover, in conditions of the polar night and the destruction of almost the entire infrastructure by the Wehrmacht. In addition, the Red Army would have to conduct combat operations with a very strong multi-species enemy group (Wehrmacht, SS units and local collaborators) on the main part of Norwegian lands.

Thus, the autonomy of the latter (in the sense of reduced probability of ground attacks from the north) from the array of forces and assets that operated in the northernmost regions of Norway (and Finland) was demonstrated in practice. In 1940–1945 (more precisely, in 1941–1944), a triune scheme was developed for using Norway as a springboard for military-strategic penetration into the Arctic Ocean, the elements of which are:

- deployment of a group in the Norwegian Finnmark (preferably with an additional grouping in the northern regions of Finland) to counter the USSR;
- building a reliable system for protecting the long coastline (primarily port infrastructure) in the main part of Norway, especially in the Trondheim-Tromsø section as the main support for the "strategic throw" (in both cases, the main burden fell on the ground forces and the air force);
- use of large naval forces with air support in the waters of the Arctic Ocean — primarily the Norwegian, Barents and Greenland seas.

In purely military terms, this triune scheme has proven to be in demand for NATO in current realities.

Features of the deployment of the Norwegian Armed Forces: "gaps" that require filling by NATO partners

Already at the initial stages of the confrontation between the Euro-Atlantic community and the Russian Federation (since 2014), Norway almost completely curtailed the previously limited military cooperation with the Russian Federation [10, pp. 353–354] (in particular, the annual Pomor exercises since the early 2010s were stopped). Already in the mid-2010s, among NATO member states, official Oslo became one of the most active supporters of "containment" of the Russian Federation, promoting the development of NORDEFCO (Nordic Defense Cooperation) and supporting the idea of Sweden and Finland joining the Alliance [10, pp. 353–354]. Such a step was seen as helping to increase the effectiveness of military-strategic positions in the Norwegian province of Finnmark and, in general, significantly helped in countering the "Russian threat." The change of government (the Norwegian Labor Party coming to power following the 2021 elections instead of the Conservative Party) had no effect on the official Oslo approach to "containing" the

Russian Federation. Taking into account the volume of the available resource base, it became actively involved in providing the authorities in Kyiv with military support under the conditions of the SMO. Thus, by the end of March 2023, shortly after the NATO member countries made the decision to transfer tanks to Ukraine (from January 25, 2023), Norway sent 8 Leopard 2 tanks [14], while their manufacturer Germany — 18 [15] (with a huge difference in terms of the number of military equipment in favor of the German Armed Forces), which reflected the toughness of Norway's position. This was also manifested by the most active support of official Oslo for the suspension of Russia's membership in the Arctic Council and the Council of the Baltic Sea States since March 2022. At the same time, there was an extreme restriction of political and diplomatic contacts on a bilateral basis, accompanied by the expulsions of Russian diplomats: in April 2022 — 3 members, and in April 2023 — already 15 representatives of the Russian Foreign Ministry [16]. It is logical that this was complemented by the growing contribution of Norway to "containing" the Russian Federation in the Arctic, especially in cooperation with NATO partners.

The "war machine" of official Oslo does not face the problem of underfunding. In 2014–2022, among NATO member states, Norway occupied 11th position in terms of total annual military spending (from more than 5.8 to almost 8.1 billion dollars in constant 2015 prices [17]) [18]. Basically, it was inferior to partners with large armed forces (from 100 thousand military servants or more — the USA, Great Britain, France, Germany, Italy, Poland, Turkey, Spain), as well as Canada and the Netherlands. In the case of Canada, another Arctic NATO member country, the range of annual military spending ranged from 15.6 to almost 22.8 billion dollars [19], i.e. it was 2.7–2.8 times more than that of Norway; however, the number of personnel in the official Armed Forces of Ottawa (65.9–71.8 thousand soldiers and officers) [20] is approximately 3.5 times higher than this figure for Oslo. In other words, the latter allocated more funds per payroll serviceman, including costs for the modernization of arms and military equipment (AME). It is noteworthy that by 2022, the share of the latter section for Norway was more than 29%, while for Canada it was only 13% [21]. Even more indicative is the fact that in terms of military expenditures per capita, official Oslo con-

[14] Ukraina poluchila ot Norvegii tanki Leopard 2 [Ukraine received Leopard 2 tanks from Norway]. URL: https://www.rbc.ru/rbcfreenews/64189bbf9a79472ad7448ca0 (accessed 05 May 2023).
[15] Liste der militärischen Unterstützungsleistungen. Bundeskanzleramt. 2023. URL: https://www.bundesregierung.de/breg-de/themen/krieg-in-der-ukraine/lieferungen-ukraine-2054514 (accessed 05 May 2023).
[16] Sluchai vysylki rossiyskikh diplomatov iz Norvegii [Cases of expulsion of Russian diplomats from Norway]. URL: https://tass.ru/info/17517435 (accessed 05 May 2023).
[17] Defence Expenditure of NATO Countries (2014-2022). Brussels: NATO, 2022. P. 7.
[18] Ibid, p. 7.
[19] Ibid.
[20] Ibid, p. 12.
[21] Defence Expenditure of NATO Countries (2014-2022). Brussels: NATO, 2022, p. 13.

sistently ranked 2nd among NATO member countries (from 1141 to 1497 dollars in constant 2015 prices), behind only the United States and significantly ahead of the United Kingdom, which was in third place [22].

Against this background, the value of such an indicator as the share of military expenditures from GDP at the level of 1.55 to 1.8% (except for 2019–2020) [23], i.e. less than 2% as a target for NATO member countries by 2024, did not have a noticeable impact on the capabilities of the Norwegian "war machine". Official Oslo was ready and able to consistently finance the development of infrastructure and, especially, the renewal of AME, while having a reserve (by approaching the target of 2% of GDP) to increase the pace even further.

By the mid-2010s, the share of modern AME varied significantly between types and branches of the armed forces. In the interests of the Royal Air Force, a program was launched (since 2012) to replace the F-16 fighters with the F-35: by 2025, it is planned to purchase 52 such machines from the United States in batches with a large supply of weapons (especially missiles) for them [24]. This will completely renew the fleet of the three main (combat) squadrons of the Air Force. F-35 purchases were the largest cost item for technical and technological modernization of the aircraft as a whole: 32% of the total allocations for 2018–2025 [25].

The Royal Navy had a modern fleet of corvettes (6 Skjold-class vessels) and frigates (4 Fridtjof Nansen class vessels [26], another one was damaged and sank during the Trident Juncture 18 exercise). Approaching the maximum service life with decommissioning was typical for submarines (de facto 4 submarines in 2015 [27]). In 2021, official Oslo decided to purchase 4 diesel submarines of Project 212 CD (the latest modification 212A) of German production: deliveries are to start in 2029 [28]. The harmonization of the composition of the Air Force with the United States and of the submarines with the FRG clearly showed which armed forces of NATO member countries were considered the main partners for the respective type and branch of the Royal Forces.

In the case of the ground forces, the problem was considered to be the lack of heavy armored vehicles, especially those intended for use in the Far North. First of all, the reorganization of motorized infantry units into mechanized ones was to be carried out as part of units of the Sever brigade [29].

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[22] Ibid, p. 11.
[23] Ibid, p. 8.
[24] Norway swaps in its F-35s for NATO quick-reaction mission in the High North. January 6, 2022. URL: https://www.defensenews.com/global/europe/2022/01/06/norway-swaps-in-its-f-35s-for-nato-quick-reaction-mission-in-the-high-north/ (accessed 05 May 2023).
[25] Future acquisitions for the Norwegian Defence Sector 2018–2025. Oslo: Forsvardepartment, 2018. P. 6.
[26] Norwegian Armed Forces in transition... Oslo, 2015. P. 15.
[27] Ibid.
[28] Neue U-Boote und Seeziel-Flugkörper für die Marine. BMVg. July 09, 2021. URL: https://www.bundeswehr.de/de/organisation/ausruestung-baainbw/aktuelles/deutsch-norwegische-u-boote-und-seeziel-flugkoerper-5109534 (accessed 05 May 2023).
[29] Norwegian Armed Forces in transition... Oslo, 2015. P. 15, 24.

The Armed Forces of Norway were generally characterized by the high combat effectiveness of their personnel and the ability to operate effectively in single and small units, including in the Far North. The key difficulty was the limited military human resources: while in 2014 there were 21.0 thousand soldiers and officers in the Armed Forces, then in 2022 — 22.6 thousand, i.e. the overall increase was minimal (moreover, the number even decreased in 2015–2019, dropping to 19.2 thousand people [30]). Considering the size of Norway's population as a whole (5.4 million people), the armed forces already employ 0.4% of it. It is difficult to expect that the Kingdom, even taking into account military service for women, will increase the armed forces significantly above the mark of 0.5% of the country's population (27 thousand military servants). Since the end of the 2010s, the Norwegian "war machine" was characterized by slow growth; with a high degree of probability, this dynamic will continue in the medium term.

In addition to regular troops, Norway also had reserve corps of 30 thousand people [31]. Some of them were involved in the exercises. Volunteers from the reserve corps will be more actively recruited for military service as contract soldiers. This decrease in the trained reserve will be compensated by its slight increase as a derivative of the increase in regular troops, i.e. the reserve corps will remain approximately the same size.

Limited human-military resources required non-trivial solutions in improving the organizational and staff structure of the Armed Forces. Thus, the creation of each new military unit forced to think about the need to redistribute personnel within the corresponding type or branch of the Armed Forces; and the deployment of an additional unit — already between the latter as a whole.

According to the 2015 plans, it was envisaged to disband the administration of the only brigade in the Norwegian army "Sever", one of the three motorized infantry battalions, as well as all those with specializations other than reconnaissance — engineering, artillery (combat), communications, support and medical (auxiliary) [32]. A number of their smaller units were to be retained as separate ones. In addition, part of the troops of the Finnmark province that were not part of the Sever brigade was also subject to disbandment — first of all, a separate mechanized battalion [33]. The planned abolition of the brigade level in the Norwegian army would mean the transfer of all units and subunits (from the battalion and below) to the direct subordination of the command of the ground forces. The released personnel (both on their own and in their places) were supposed to be sent to strengthen other branches of the army. Such a drastic reduction of Norwegian troops in Finnmark, i.e. in the province bordering the Russian Federation, indicated that the Norwegian leadership in 2015, a year after the outbreak of the armed conflict in eastern Ukraine, did not perceive the hypothetical "Russian threat" as existential.

However, in the second half of the 2010s, all plans to disband the brigade and military units at lower levels were canceled — moreover, preparations for the creation of new combat units (in-

[30] Defence Expenditure of NATO Countries (2014-2022). Brussels: NATO, 2022. P. 12.
[31] Norwegian Armed Forces in transition... Oslo, 2015. P. 15.
[32] Ibid, p. 15, 24.
[33] Ibid.

cluding by redirecting some of the personnel from the auxiliary ones) began. It seems that in the revision of the initial decision, perhaps the key role was played by the positions of Norway's NATO partner states, interested in strengthening the "containment" of the Russian Federation and at the same time covering the strategic penetration into the Arctic Ocean with the support of the bases of the south and center of Norway by the group in Finnmark. Leading NATO partners were ready to build up (mostly temporarily) military forces in Finnmark, but it would be in their interests if the Norwegian forces themselves formed the basis of the grouping here.

Meeting the wishes of its partners, Norway has maintained the configuration of the deployment of its armed forces, especially ground forces, that was present by 2015. This is the maximum concentration of ground units (within the Sever brigade and troops outside it) in the Finnmark province. In the rest of the (main) part of the country, there remained mainly cadre units and training centers for recruits and reservists, units of a relatively small rapid reaction force (3250 military servants), as well as a battalion of the Royal Guard in Oslo [34]. Accordingly, here, especially in the vast area between Trondheim and Tromsø, the Norwegian army potentially needed reinforcement — but only in a situation where, under the auspices, a multilateral military-strategic penetration into the Arctic began.

The modernized Norwegian Air Force focused approximately equally on covering the northern regions and the rest of the country, thereby supporting the plans of partners in all major areas.

Finally, the Norwegian Navy (with the exception of coast guard and logistics support units) could naturally become one of the main backbones of the NATO groupings directly supporting the presence in the Arctic Ocean. Based on its modern equipment (primarily in terms of frigates — a class of ships intended for use in the ocean zone), the Norwegian surface naval forces were earlier than other branches and branches of the armed forces and were better prepared to provide practical support to NATO partner states in their intentions.

Features of the military presence of NATO countries in Norway

The author's assumption that Norway's own need for military support from its Alliance partners was just potential, i.e. it was not needed to ensure the security and defense of the kingdom in "ordinary" realities, without NATO's strategic penetration into the Arctic, is proven by the line of behavior of official Oslo itself. During the years of the previous Cold War, Norway was free from the constant presence of allied forces: the northern NATO army group was stationed in Germany [18, Lautsch Z., pp. 80–101], but not on the geographically eponymous flank of the Alliance's forward zone of responsibility in Europe. At least in the first decade (2014–2023) of the current confrontation between the West and the Russian Federation, official Oslo did not turn to NATO partners with a request to station an allied military presence on its territory. Thus, this did not happen either in July 2016, when the decision was made to establish multilateral combat battalion

[34] Norwegian Armed Forces in transition... Oslo, 2015. P. 15.

tactical groups (BTGs) in Poland and the Baltic countries (actually deployed since January 2017), or in March 2022, when they were created in the southern part of Eastern Europe (in Slovakia, Hungary, Romania and Bulgaria), or in June 2022, when the smooth transformation of the "old" BTGs into brigades began [35]. Geographically and chronologically, the US national presence was developed synchronously — one brigade in Poland and to the north of it (since 2017), another one — in the countries of the region to the south [36]. At the same time, other components of the conventional (non-nuclear) military presence — primarily sea and air — were being built up, and the system of headquarters at various (up to corps) levels was expanding. It is indicative that Norway itself has taken part in recruiting the multinational BTG in Lithuania (the "framework state" is Germany) since its creation, supporting the decision (2022) to reorganize this unit into a brigade. As of June 2022, the contribution of the royal forces was 188 military servants (11.5% of the total BTG strength of 1632 soldiers and officers and almost 2% for the BTG FDF as a whole, which had 9641 people [37]) or about 0.9% of the Norwegian Armed Forces. It should be emphasized that participation in the acquisition of the BTG FDF was not strictly mandatory for all member states of the Alliance: for example, Greece, Turkey and Portugal were not involved in this process at least in 2017–2022 [38]. Official Ankara preferred to focus on the Middle East and North Africa as its key areas of interest, Lisbon — on the latter. Norway was "tied" to the Arctic, participated in the "containment" of the Russian Federation as a border state, but official Oslo did not see this as an obstacle to making a full contribution to the acquisition of NATO's strategic missile defense system in Eastern Europe. This provision reflected the country's self-sufficiency in the field of security and defense.

While in Eastern Europe, de jure, the initiative to deploy FDF military units came from the regional players themselves, in the case of the Kingdom of Norway, other (in relation to the official Oslo) NATO member states — primarily the United States, Great Britain and Germany — had to come forward with a corresponding proposal, requesting and receiving approval from the Norwegian side. On the one hand, the leading players of the Alliance demonstrated a certain dependence on the relatively small (especially in terms of population) Norway, on the other hand, this scheme allowed them to approach the use of their troops, especially ground forces, much more flexibly than in Eastern Europe, which in practice was very important.

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[35] NATO's military presence in the east of the Alliance. NATO. December 21, 2022. URL: https://www.nato.int/cps/en/natohq/topics_136388.htm (accessed 05 May 2023).

[36] Fact sheet — U.S. Defense Contributions to Europe. The US Department of Defence. June 29, 2022. URL: https://www.defense.gov/News/Releases/Release/Article/3078056/fact-sheet-us-defense-contributions-to-europe/ (accessed 05 May 2023).

[37] NATO's Forward Presence. NATO. June 2022. URL: https://www.nato.int/nato_static_fl2014/assets/pdf/2022/11/pdf/221128-factsheet-efp_en.pdf (accessed 05 May 2023).

[38] See, for example, NATO's Forward Presence. NATO. November 2022. URL: https://www.nato.int/nato_static_fl2014/assets/pdf/2022/11/pdf/221128-factsheet-efp_en.pdf (accessed 05 May 2023).

In the 1990s – early 2010s, the armed forces of NATO member states underwent massive reductions: for example, between 1989 and 2015, the number of servants of the US Armed Forces decreased from 2241 to 1314 thousand soldiers and officers (1.7 times), Great Britain — from 318 to 141 thousand (2.3 times), Germany — from 503 to 177 thousand (2.8 times) [39]. Since the second half of the 2010s, the restorative growth of these armed forces has been small (usually within 1% per year; until 2018, there was even a reduction in inertia) and at the same time lagged sharply behind the increase in multilateral forces under NATO's command. Thus, at the Madrid summit of the Alliance (June 28–30, 2022), a decision was made to directly use the bloc as part of the groupings, reserving 800 thousand soldiers and officers for this (including 300 thousand with ability to bring full combat readiness up to 1 month) [40], which accounted for more than 40% of the number of armed forces of all European NATO member countries (1.96 million) [41]. Taking into account the fact that they, and not the USA, bear the overwhelming part of the burden of practical strengthening of the military potential under NATO subordination, there is an obvious interest in searching for the most convenient (flexible) forms of appropriate use of national troops. Therefore, both the rapid reaction forces (the powerful II strategic echelon of the Alliance forces) and the forward deployment forces were staffed on a rotational basis, i.e., with the temporary provision of specific forces and assets necessary to fill the declared national quota. While making increasingly clear (in terms of numbers) commitments to NATO partners in Eastern Europe, the US and especially the Western European powers sought both to avoid this in the case of Norway and to ensure strategic penetration of the Arctic with Norway's support.

There were two ways out of this contradiction. The main one was the intensification of military training activities under the auspices of NATO in Scandinavia and the Arctic (in terms of large maneuvers, which surpassed the indicators for Eastern Europe). This made it possible to practice the deployment of a mass of troops of various types of armed forces in subarctic and arctic climates, i.e., to gain experience for a large number of military servants, moreover, redirecting them from solving other (more standard) tasks only for a short time — usually several weeks. Another way, which had rather an auxiliary significance, was the deployment of an allied presence on Norwegian territory, formally within the framework of NATO, but de facto in a national capacity, i.e. on a bilateral basis. Moreover, such agreements could be more easily renegotiated, i.e. the presence could be curtailed or transformed in the short term. It is logical that the second option was carried out by the United States, which implemented it in parallel in Eastern Europe.

[39] Financial and economic data relating to NATO defence. Press release M-DPC-2(91)105. Brussels: NATO, 1991. P. 7; Defence Expenditure of NATO Countries (2014-2022). Brussels: NATO, 2022. P. 12.
[40] New NATO force model. NATO. June 30, 2022. URL: https://www.nato.int/nato_static_fl2014/assets/pdf/2022/6/pdf/220629-infographic-new-nato-force-model.pdf (accessed 05 May 2023).
[41] Defence Expenditure of NATO Countries (2014-2022). Brussels: NATO, 2022. P. 8.

Contribution of NATO partners to strengthening the grouping in Finnmark

Although the NATO air defense system and associated troops of countries located in the forward part of the zone of responsibility (as was the case with the armed forces of the Alliance member states in Eastern Europe), the de jure grouping of forces and assets in the province of Troms og Finnmark was not included, de facto it was part of this category. This is confirmed by the chronological synchronisation of the measures taken by the United States and NATO member states to build up the grouping in Northern Norway with the increase of the FDF capabilities in Eastern Europe in 2016–2017 and 2022.

Against the backdrop of the decision to create their first BTGs in Poland and the Baltic countries (July 2016), in October 2016, the Obama administration announced a decision to send 330 marines to Finnmark [42] — in both cases the forces were actually deployed since January 2017. In June 2018, the D. Trump administration, with the consent of Norway, decided to increase its presence to 700 Marine Corps (MC) servants [43], i.e., the "core" of the BTG. This was significant in the High North, increasing the Royal Forces' combat power in Finnmark by 20–25%. However, the United States itself benefited much more. They gained an opportunity to work out the scheme of creating their own Arctic troops in close cooperation with Norwegian units (repeatedly transferring their units to their commanders for training on a temporary basis) and their well-established infrastructure. Another advantage was the acquisition of practical skills in the area geographically adjacent to the Kola Peninsula — the deployment zone of the main part of the Russian Northern Fleet. It is indicative that the rotating (every 6 months) US contingent was planned to be stationed here for at least 5 years [44].

However, in reality it was already withdrawn by September 2020 [45]. What are the reasons for such a noticeable change in approach? This cannot be explained by the pandemic factor, i.e. during the first, most difficult, waves of it, USMC units remained in northern Norway. Considering the approach of the Trump administration (with its business thinking) to foreign policy, especially relations within NATO, it is appropriate to highlight three main reasons. Firstly, this is a requirement for Norway to increase the level of military spending to 2% of GDP: while in 2016–2018, they were at the level of 1.72–1.74%, then in 2019 they were increased to 1.86%, and in 2020 — to 2.0% [46]. Moreover, this mark was reached in the year of the first waves of COVID-19, which had the greatest "freezing" effect, when there was a decrease in GDP (in the case of Norway — from 406 to 404 billion dollars) [47] — in other words, in practice, military expenditures hardly grew at all.

[42] Some 330 U.S. Marines to be temporarily stationed in Norway in 2017. October 24, 2017. URL: https://www.reuters.com/article/us-norway-usa-military-idUSKCN12O2DM (accessed 05 May 2023).
[43] US to double number of Marines in Norway amid Russia tensions. June 12, 2018. URL: https://edition.cnn.com/2018/06/12/politics/us-marines-norway-russia-tensions/index.html (accessed 05 May 2023).
[44] US to double number of Marines in Norway amid Russia tensions. June 12, 2018. URL: https://edition.cnn.com/2018/06/12/politics/us-marines-norway-russia-tensions/index.html (accessed 05 May 2023).
[45] U.S. Pulls 700 Marines Out of Norway. August 7, 2020. URL: https://www.lifeinnorway.net/u-s-pulls-700-marines-out-of-norway/ (accessed 05 May 2023).
[46] Defence Expenditure of NATO Countries (2014–2022). Brussels: NATO, 2022. P. 8.
[47] Ibid, p. 10.

Already in the early 2020s, their share of GDP fell back below 1.8% [48]. Thus, official Oslo took into account the demands of D. Trump at the NATO level, but reduced its readiness to maintain the US military presence in Finnmark, which was primarily needed by the latter themselves. Secondly, the 45th President of the United States was precisely trying to emphasize the White House's lack of any dependence on NATO partners. Thirdly, D. Trump was very sensitive to the fact of Norway's advanced relations with Germany (in particular, the presence of a full-fledged negotiating tandem of the two countries E. Solberg – A. Merkel) — the main object of criticism and pressure from the United States within the Euro-Atlantic community. This was symbolized by the choice of Germany as the supplier of new submarines for the Norwegian Navy.

However, the White House decision in 2020 turned out to be purely tactical. Strategically, the United States needed to ensure a full-fledged military-strategic presence in northern Norway, which was confirmed by the course of the Biden administration. Compared to its predecessor, it managed to find more convenient for both sides, especially for the USA itself, forms of this: areas of joint military use ("agreed areas") as specialized objects with adjacent territories/waters, where both the USA and Norwegian military were freely allowed to enter [49]. In the latter respect, these areas differed from the classic overseas military bases of the United States (usually under the exclusive jurisdiction of the latter), which was a step towards the interests of official Oslo. Like its predecessors since the 1950s, the government of J.G. Støre did not agree to completely transfer part of Norwegian territory to accommodate a permanent Allied presence. At the same time, the creation of these areas was a huge step towards the United States, which received "all-season" access to the military (and dual-use) infrastructure of Norway, i.e., "insurance" for the US long-term military presence.

On June 8, 2022, the Storting approved the agreement with the United States by a majority vote, including the Norwegian Labor Party and the Conservative Party, but with strong criticism from the ultra-left. The document envisaged the creation of two joint military-use areas: at the naval bases in Ramsund (Finnmark) and the air force base in Evenes (Tromso, near Narvik) as the main locations for the corresponding types of troops in Northern Norway [50]. In the first case (Ramsund), the United States was able to deploy units of the Marine Corps, in the second — the Air Force, interacting with the Royal Air Force, which was being re-equipped with the F-35 [51]. Moreover, the White House could freely vary the number of personnel and AME units, unlike the situation in 2016–2020.

The experience of that time and gaining in cooperation with the Norwegian Armed Forces allowed the United States to move on to creating its own full-scale Arctic troops. On June 6, 2022,

[48] Ibid, p. 8.
[49] New Norway — USA Defense Agreement Allows Extensive US Authority in the North. June 8, 2022. URL: https://www.highnorthnews.com/en/new-norway-usa-defense-agreement-allows-extensive-us-authority-north (accessed 05 May 2023).
[50] Ibid.
[51] Ibid.

the 11th airmobile (airborne) division of the "Arctic Angels" was created as part of the US Army based in Alaska, consisting of 12 thousand soldiers and officers [4, p. 120]. The basis of the formation was formed by two brigades: the 1st Infantry (formerly the 1st Striker Brigade) and the 2nd Airmobile (formerly the 4th Airmobile of the 25th Infantry Division) [52]. The 11th Division became the first formation of this level created for the first time in the US Army since the 2010s (as of spring 2022, there were 10 divisions, without consecutive numbering), showing a noticeable increase in the White House's attention to the Arctic. Taking into account the MC units and other branches of troops used in cooperation with the 11th division, the US Arctic troops in Alaska constituted at least 1% of the total number of armed forces (almost 1350 thousand military servants) in mid-2022 [53], no longer inferior in the number of military personnel in the Norwegian Armed Forces group in Troms og Finnmark. At the same time, the latter, at least in the medium term, will retain an advantage in terms of the efficiency and level of training of an individual soldiers and small units.

The chronological coincidence of the establishment of the 11th Division in Alaska in early June 2022 and the ratification (and immediate start of implementation) of the agreement on joint military-use areas in Northern Norway is not at all coincidental. Thus, with the leading participation of the White House, there was a parallel construction of segments of "containment" of the Russian Federation in the Arctic to the east and west of its borders. At the same time, NATO member countries as a whole were working on strengthening the group in Finnmark: for example, the largest (30 thousand military servants) NATO exercise Cold Response 22 (March 14–31, 2022) with the participation of 26 member countries of the Alliance, Sweden and Finland [54]. The core of the German contingent was a battalion of mountain riflemen, supported by military transport aviation [55]. The United States, together with the Netherlands and Great Britain, focused on using marine units to fight the "enemy", which was the tank and mechanized units of Sweden and Finland [56]. The latter were most actively involved in building a system of "containment" of the Russian Federation in Northern Norway. After official Stockholm and especially Helsinki joined the Alliance, the troops stationed in the corresponding part of the countries had to strive to merge into a single operational-tactical whole with the Norwegian Sever brigade and the forces of other NATO member countries temporarily stationed here. The maneuvers were aimed at practicing the deployment, including after the start of hostilities, of a multilateral formation at the division level, the "core" of which was the Norwegian brigade "Sever" — in other words, it was about its opera-

[52] Army Forms 11th Airborne Division Amid Focus on Arctic Warfare. 6.06.2022. URL: https://www.military.com/daily-news/2022/06/06/army-forms-11th-airborne-division-amid-focus-arctic-warfare.html (accessed 05 May 2023).
[53] Calculated on the basis: Defence Expenditure of NATO Countries (2014–2022). Brussels: NATO, 2022. P. 8.
[54] Cold Response 2022. Forsvaret. 2022. URL: https://www.forsvaret.no/en/exercises-and-operations/exercises/cr22 (accessed 05 May 2023).
[55] Gebirgsjäger bei Cold Response 2022. NATO. April 01, 2022. URL: https://www.bundeswehr.de/de/organisation/heer/aktuelles/gebirgsjaeger-bei-cold-response-2022-5385872 (accessed 05 May 2023).
[56] Dispatch from the field — exercise Cold Response 2022 wraps up in Norway. NATO. April 5, 2022. URL: https://www.nato.int/cps/en/natohq/news_194434.htm (accessed 05 May 2023).

tional "addition" by troops of other member countries of the Alliance and debugging the supply of all these forces in the conditions of early spring in the Far North.

Cold Response maneuvers began to be conducted since 2006 twice a year (usually in spring and autumn; were not organized in 2020) as a national exercise for the Norwegian Armed Forces. By agreement with the organizer, contingents of NATO partners took part in them (primarily from the USMC in Finnmark in 2016–2019). In this regard, the Cold Response 22 case documented the trend of internationalization, i.e., the transformation of the aegis from a purely national one to NATO, of the most important exercises in Norway. A similar situation was observed with the Joint Viking 23 maneuvers, which took place in Tromsø with the participation of 12 thousand participants in March 2023 [57]. Naturally, this manifested itself primarily in Northern Norway — the east-facing zone of "containment" of the Russian Federation, which provided a system of strategic Alliance penetration into the Arctic from the north.

Trondheim –Tromsø: military reinforcement from NATO

Full-scale testing of the deployment of Alliance forces to cover its support — a network of ports and airfields from Trondheim to Tromsø — was carried out for the first time during the Trident Juncture 18 exercises. They took place from October 25 to November 7, 2018 in the provinces of Trøndelag (Central Norway), and Hedmark and Oppland (merged into the province of Innlandet since 2020; Eastern Norway) involving 50 thousand military servants, 65 ships, 250 aircraft and 10 thousand units of ground equipment [58]. Contingents were allocated by almost all NATO member countries, as well as Sweden and Finland. Unlike Cold Response, the Trident Juncture cycle of maneuvers has traditionally (since the first one in 2002) been held under the auspices of NATO, and these exercises have usually stood out among others for the Alliance for their scale (in particular, Trident Juncture 15 in Southern Europe). Specifically, Trident Juncture 18 stood out in this row, being the largest for NATO in the first two decades of the 21st century. Thus, the bloc's enormous interest in providing cover for Central and Eastern Norway to gain a foothold in the Arctic was demonstrated. Apart from the host country, the largest contingents were provided by the USA (20 thousand soldiers and officers) [59] and Germany (over 8 thousand servants) [60], i.e., in total more than 50% of the total number of personnel involved. Increased attention was paid to military logistics aspects: the transfer from Western Europe (primarily from the British Isles and Germany) and transatlantic (from the USA) of large masses of troops, equipment and ammunition. The land part

[57] Joint Viking 2023. Forsvaret. 2023. URL: https://www.forsvaret.no/en/exercises-and-operations/exercises/jv23 (accessed 05 May 2023).
[58] Trident Juncture 2018. NATO. 2018. URL: https://www.nato.int/cps/en/natohq/157833.htm (accessed 05 May 2023).
[59] U.S. Joins NATO's Trident Juncture Exercise. US Department of Defence. October 18, 2018. URL: https://www.defense.gov/News/News-Stories/Article/Article/1666272/us-joins-natos-trident-juncture-exercise/ (accessed 05 May 2023).
[60] Bundeswehr bei NATO-Übung „Trident Juncture 18". September 17, 2018. URL: https://www.truppendienst.com/aktuelle-artikel/bundeswehr-bei-nato-uebung-trident-juncture-18 (accessed 05 May 2023).

of the maneuvers involved 6 brigades (i.e., the equivalent of two full divisions) and significant USMC forces [61]. The movement from the south of Norway of a large group of rapid deployment forces (NRF) — the "spear" of multilateral NATO troops — was worked out. Its "spearhead" was considered the high-readiness brigade (VJTF), the basis of which at the Trident Juncture 18 exercises was the elite 9th Tank Training Brigade of the Bundeswehr [62]. Carrying out a chain of counterattacks against the "enemy", the NRF group tested covering the network of Norwegian ports and building an enhanced security system along the coast. The exercises clearly showed the consensus of NATO member countries on the issue of the most active use of NRF to support not only (and even not so much) the Eastern, but also the Northern European member states. The construction of a single military logistics corridor between the northern ports of Germany and the southern ports of Norway was tested. Among the leading players in the Alliance, following the United States, Germany showed increased interest in cooperation with Norway for military-strategic penetration into the Arctic.

Expansion of NATO's naval activity in the North Atlantic and the Arctic Ocean

The naval component of Trident Juncture 18 included not only the adjustment of the functioning of multilateral task forces to the south and southwest of Norway, their subsequent covering of ports from Trondheim to Tromsø, but also the practice of moving from them into the Norwegian Sea [63]. As part of Trident Juncture 18, for the first time since 1991, the United States sent its aircraft carrier to the Arctic Ocean and deployed control of the 6th operational fleet [5, p. 30]. The increased activity was continued at the turn of the decade, especially during exercises involving two or more NATO member states: in addition to the United States (and Great Britain), the Federal Republic of Germany was again significantly engaged [64]. This mainly involved the use of ships and submarines at relatively short distances from the Norwegian coast (usually several dozen, less often 200–300 km). At the same time, the boundaries of multilateral naval activities under the auspices of the Alliance gradually expanded towards the Greenland and Barents Seas. Progressively unfolding by the mid-2020s, this activity represented the "core" of NATO's strategic penetration into the Arctic Ocean. In this regard, Norway's own naval activity in the area of Spitsbergen Island is more than likely to be increased, as well as its strategic importance in the Alliance's plans [19, Todorov A.A., p. 135–140].

The Joint Viking 23/Joint Warrior 23 combined maneuvers are indicative in this regard. The land component of the former took place in Tromsø [65], representing the testing of the "coupling"

[61] Germany steps up to lead NATO high readiness force. NATO. January 1, 2019. URL: https://www.nato.int/cps/en/natohq/news_161796.htm (accessed 05 May 2023).
[62] Ibid.
[63] See: Trident Juncture 2018. NATO. 2018. URL: https://www.nato.int/cps/en/natohq/157833.htm (accessed 05 May 2023).
[64] See, for example, „Sachsen" erhält Nikolaus-Preis in Sonderform. BMV g. March 18, 2019. URL: https://www.bundeswehr.de/de/organisation/marine/aktuelles/sachsen-erhaelt-nikolaus-preis-in-sonderform-5022470 (accessed 05 May 2023).
[65] Joint Viking 2023. Forsvaret. 2023.

of the segment of "containment" of the Russian Federation in Northern Norway and the land cover of its ports southwards to Trondheim. The naval one took place in the north-eastern part of Norwegian in unified connection with the Joint Warrior 23 maneuvers. In their case, the organizer was Great Britain, and the key role in the conduct, in addition to the official London Navy, was played by NATO's 1st constant (in fact of existence; in composition — rotational) NATO naval group [66].

Conclusion

In the late 2010s and early 2020s, Norway's practical importance in NATO's planning and activities and the integration of the royal "war machine" into the Alliance's joint capabilities increased significantly. An illustration of this is the combination of block maneuvers, quite large ones at that, carried out on the territory of Norway, in the waters near it (Trident Juncture 18, Joint Warrior 23) with its national exercises, the management of which was transferred under the jurisdiction of NATO (Cold Response 22, Joint Viking 23). Moreover, the partners tried to make maximum use of the Royal Armed Forces to gain practical combat experience in Arctic and sub-Arctic conditions, especially in spring and autumn. The Norwegian Brigade "Sever" de facto became part of the forward deployment forces of the Alliance (in this regard, it is actively supported, especially by the United States), and its rapid reaction forces have made Norwegian (and generally Scandinavian, Arctic) forces one of their most important areas of use. Moreover, both Norway and NATO and other participating countries considered it convenient for themselves that there were no Alliance groups deployed on the territory of the kingdom on a long-term basis with a clear definition of the number and geography of deployment (similar to cases in Eastern Europe).

The national strategies of specific NATO powers to develop military cooperation with Norway varied, reflecting the traditional features of foreign policy: the United States (and to a lesser extent Great Britain) combined bilateral (generally larger in volume) and multilateral cooperation; Germany, on the contrary, quite organically integrated its dialogue with official Oslo into the latter. At the same time, the subject of unofficial consensus was a scheme for strategic penetration under the auspices of NATO into the Arctic, relying on the Kingdom of Norway, which was developed in purely military terms back in 1940–1944. This is the construction of a powerful segment of "containment" of the Russian Federation in Finnmark, i.e. facing east (with the northern part of Finland and Sweden being added here) as cover for a system of bases in Central and Eastern Norway, already westward-facing. Finally, the main instruments of penetration are multilateral naval groups (with the support of the Air Force and special operations forces) in the Norwegian, Greenland and prospective Barents Seas, i.e. westward-facing, but with a turn to the east. The construction and testing of each of the elements of this scheme started in 2017 (for the first one) and in

[66] NATO Ships Take Part in Exercise Joint Warrior 23-1. NATO. March 15, 2023. URL: https://mc.nato.int/media-centre/news/2023/nato-ships-take-part-in-exercise-joint-warrior-231 (accessed 05 May 2023).

2018 (for the other two), respectively, and received very dynamic development at the beginning of the next decade.

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Orthodox Religious Infrastructure in the Tourism and Recreation Sphere of the Murmansk Oblast

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Abstract. Using the example of the Murmansk Oblast, the article analyzes the functioning of religious tourism within a region located in the conditions of the Polar and Subpolar areas. The region is considered as an example of the development of this direction of recreational economy, within which almost all objects of religious infrastructure, acting as the main objects of excursion display on thematic tourist routes, were lost during the Soviet period. A differentiated approach is used to apply the calculated coefficient of territorial concentration in order to identify the features of the placement of functioning monasteries, temples, and chapels. Their high concentration within certain areas of the Murmansk Oblast is recorded. On this basis, as well as on the basis of the analysis of the composition of the main thematic routes offered on the market, the following religious tourism clusters are proposed to be identified — Murman-Kolskiy, Tersko-Beregovoy, and Pechengskiy. The main conclusion of the article is that the role of religious objects in the implementation of educational routes throughout the Murmansk Oblast is significant, and religious tourism within its borders not only operates despite the high dispersion in the placement of monasteries and temples, as well as the losses of the Soviet period, but also has prospects for the introduction of innovative forms.

Keywords: *Murmansk Oblast, religious tourism, tourist-recreational cluster, educational tourism, multiplicative effect*

Introduction

The relevance of a detailed study of issues related to the functioning of the recreational system in the regions of the Russian Arctic is due to a number of reasons. Modern trends show that the vector of economic and political national interests is shifting towards the Polar and Subpolar regions. This concerns not only the high volumes of mineral resources in the administrative entities of the Russian North or their role in forming a guarantee of the country's strategic security. In recent years, the problems caused by the need to find ways of import substitution in the sphere of recreational services are gaining more and more practical significance and, therefore, require theoretical understanding, since the opportunities for citizens of the Russian Federation to travel abroad for tourism and recreation have been significantly limited in recent years.

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Despite the fact that, according to the typological scale of Russian regions, identified on the basis of the median of the National Tourist Rating for the period 2016–2020, most of the subjects of the European North of the Russian Federation, except for the Republic of Karelia and the Vologda Oblast, are characterized by either insufficient (Arkhangelsk Oblast, Murmansk Oblast, Komi Republic) or low level of tourist attractiveness (Nenets Autonomous Okrug) [1, Kondratyeva S.V.]. Interest in visiting them in the course of educational, sports and other kinds of thematic trips is fixed and is reflected in the increasingly expanded list of offers of the relevant routes and, judging by the dynamic group filling, stable demand for them [1].

The population's interest in the Arctic regions of the Russian Federation as recreational areas acquires a special expression during the peak of high temperatures in the summer months, as well as in the season when it is possible to observe such a natural phenomenon as the northern lights. In addition to the indicated factors of attracting tourists, there are others, also important, characteristic not only of northern destinations.

Religious infrastructure facilities play a significant role in the tourism potential of the regions. They not only serve as the basis for the implementation of pilgrimage routes, by definition pursuing the goal of participation in religious rites, but also give attraction to excursion and educational trips. It is no coincidence that experts point to the fact that 90% of tourist interest is associated with churches and monasteries. Moreover, it is manifested both to the preserved and to the destroyed and ruined architectural structures of this type [2, Khadieva R.T., Semenyuk N.V.]. Such high and steady attention to visiting chapels, temples, monasteries and other religious and sacred destinations is still recorded, despite the obvious spread of secular trends both in Russian society [3, Markin K.V.] and among the population of economically developed foreign countries, especially European ones [4, Lunkin R.N., Filatov S.B.]. In the states that are part of the Arctic region, religious routes also continue to be in demand, and the infrastructure that ensures their comfortable and safe implementation is being developed [5, Balabeykina O.A., Yankovskaya A.A., Korobushchenko V.Yu.].

The above-mentioned circumstances emphasize the relevance of addressing such a subject area as the prospects for the development of religious tourism within the regions of the Russian Arctic. One of them, the Murmansk Oblast, acts as a testing ground for the research of the presented work.

Literature review

Scientific works, the content of which can serve as a theoretical basis for this research, are conventionally divided into subject-semantic blocks. In order to form a general overview, it is necessary to rely on the works that discuss issues related to the development and functioning of the recreational sector in northern countries and regions at a speculative level [6, Ivanov I.A., Mikhailov B.S.; 7, Manakov A.G.].

[1] Travel agency "Silver Ring". URL: https://www.silver-ring.ru/ru/trip/ru/turi-v-murmansk-i-na-kolskiy-poluostrov (accessed 20 April 2023).

Among the domestic and foreign specialists who left a noticeable mark in the formation of the scientific direction, the subject of which is religious tourism, one can name O.E. Afanasyeva [8], A.A. Bertosh [9], D. Liggett and E. Stewart [10].

An important group of scientific works, the results of which should be taken into account in the content of the presented research, are those in which the Murmansk Oblast acts directly as a testing ground for studying issues related to the development of tourism [11, Zhelnina Z.Yu]. Russian scientific space does not contain works of a complex nature, devoted directly to religious routes within the designated region. But the developments, where the considered type of tourism in the Murmansk Oblast finds a detailed mention in the list of other types of recreational economy that have the potential for further development [12, Bertosh A.A.], including at the level of individual districts [13, Davydova A.S.], are of significant importance.

Scientific publications, the authors of which examine in detail tourism on religious topics using the example of specific subjects of the European North — the Arkhangelsk Oblast [14, Balabeykina O.A., Gavrilova K.S., Kuznetsova Yu.A.], Republic of Komi [15, Kirosova T.A., Naydenov N.D.], Republic of Karelia [16, Zakharchenko S.O.], act as a valuable analogue base for the implementation of the presented research.

So, it can be stated that the list of scientific works devoted to the generally identified problems has been expanding in recent years, and their content is of a very diverse nature. The situation is different in relation to the Murmansk Oblast, which, unlike the Arkhangelsk Oblast and the Republics of Karelia and Komi, has not been a testing ground for comprehensive research on religious tourism.

Materials and methods

Initial data on the number of Orthodox monasteries, temples and chapels within the region under consideration and their descriptive characteristics are presented on the electronic website "Public Catalog of Orthodox Architecture" [2]. They were analytically processed using calculation and statistical methods adopted in regional-economic research. For example, in order to identify the degree of uniformity of Orthodox religious infrastructure objects, such indicator as the coefficient of territorial concentration/differentiation was used.

Methods of content analysis and scientific synthesis of information were traditionally used.

Research results

The most important component of the tourist attractiveness of any Russian or foreign region is the provision of its territory with objects of interest for the consumer of recreational services. If we are talking about tourism with an educational or religious orientation, then monastery and temple complexes, chapels are attractive for excursion purposes. In turn, the number and degree of preservation of them depends on a number of factors — historical,

[2] "Public Catalog of Orthodox Architecture". URL: https://sobory.ru (accessed 25 February 2023).

economic, social. In the post-Soviet period, when religious tourism received an impetus for development due to the transformation of the system of socio-political relations, the greatest potential was found within the most developed territories of Central Russia and some regions of the North-West, where in the pre-revolutionary period there was a high population density and, accordingly, there was a dense network of Orthodox churches. Many of them, due to their historical and cultural value, have been museumized, making them preserved and attractive for visitors.

The current situation with the provision of religious infrastructure objects in the Murmansk Oblast differs significantly from that in Central Russia, as well as within the old developed or densely populated regions of the North-West, and is determined by a combination of factors, the disclosure of which requires an appeal to retrospective.

Formally, the process of diffusion of Orthodox values on the territory of the Arctic region under consideration dates back to the 14th century. At the first stages, it was associated with the bearers of the culture of this Christian confession — Russian settlers, but already in the first third of the 14th century, attempts to Christianize the indigenous peoples of the Kola North are recorded. Gradually, as the population of the peninsula and the share of Orthodox Christians in its structure increased, parish churches were opened. When, by the end of the 17th century, their number reached a level appropriate for the allocation of a regional church-administrative unit — a diocese, it was established and named Kholmogorskaya and Vazhskaya (later — Arkhangelskaya and Kholmogorskaya).

Harsh natural and climatic conditions of the region and low level of inhabitation of the territory created prerequisites for the emergence of monasteries within its boundaries. So, in the middle of the 16th century, the Trifonov-Pechengskiy Monastery was founded in the extreme north-west of the Kola Peninsula, and in the course of time it occupied vast areas. By the 19th century, having gone through the stages of ruin and restoration, it became the historical, cultural and economic dominant of the Murmansk-Kolonistskaya volost [17, Koryakovskiy A.A.]. In addition to the mentioned monastery, the Kandalakshskiy and Kolskiy (Petrovskiy) monasteries were also functioning in the Kola North. Moreover, before the reform of 1764, the economic facilities of other monasteries were located there — Solovetskiy, Kirilo-Belozerskiy, Antoniyevo-Siyskiy, etc.

By 1917, within the boundaries of the modern Murmansk Oblast, there were 53 Orthodox churches and 28 chapels [18, Grashevskaya O.V.]. They were concentrated in the most populated areas (Terskiy coast) and located in extreme distance from each other within underdeveloped territories. The system of placing buildings and structures of the Orthodox cult, inherited from that period, influences the development of religious tourism to this day.

The complication of church-state relations in the first decades of Soviet power led to the fact that in the early 1940s, Murmansk Oblast was included in the list of 25 subjects of the RSFSR, on the territory of which there were no functioning churches. Later, the situation changed: in 1947, 4 Orthodox parishes were opened, two of which were liquidated in 1960.

Subsequent transformations in the structure of the confessional space of the Murmansk Oblast are determined by the socio-political trends of the post-Soviet period. In 1988–1998, more than 20 Orthodox churches and chapels were opened within the region's boundaries, and their number increased in the future. The richness of the religious infrastructure entailed the establishment of the Murmansk and Monchegorsk Diocese in 1995. In 2013, it acquired the status of a metropolia, including 2 independent bishoprics — Murmanskaya and Severomorskaya. There are dozens of temples and chapels, monasteries within each of them.

The presence of Orthodox religious sites in the region is the most important, but not the only factor that creates the conditions and prerequisites for the development of religious-thematic tourism. As for almost any other direction of recreational economy, the provision of hotel and transport infrastructure, public catering enterprises, cultural and leisure facilities is of great importance. An important condition in the formation of routes of religious themes, both one-day and longer, is the location of objects provided for visiting for the purpose of excursion.

In order to identify the degree of uniformity in the distribution of Orthodox churches within the region, the calculation of the coefficient of territorial concentration/diversification (CTC) is used. In domestic scientific circulation, it finds application, for example, in the study devoted to the analysis of marketing tools used to increase the tourist attractiveness of the Arkhangelsk Oblast in the aspect of religious tourism [14, Balabeykina O.A.].

It should be noted that within the framework of the scientific work cited as an example, the approach to the selection of initial data was used, which requires some adjustment to make the results more objective. Thus, when calculating the CTC in relation to the distribution of Orthodox churches in the Murmansk Oblast, only functioning Orthodox religious objects were taken into account, and those that are lost or ruined, being not of significant interest to tourists and pilgrims, did not appear in the list of source data. In addition, the area of marine waters formally included in some areas of the region was not taken into account.

The following formula was used to calculate the degree of uniformity in the placement of Orthodox churches within the Murmansk Oblast:

$$CTC=\sum_{i=1}^{n} (Oi \div O - Si \div S)$$

where

Oi — quantitative value of the characteristic being studied (temples) for the i-th territorial unit (administrative-territorial entity of the Murmansk Oblast);

O — total quantitative value of the studied attribute O (Orthodox churches) for all territorial units of the region under consideration (Murmansk Oblast);

Si — area of the territory of the i-th territorial unit (each of the administrative-territorial entities of the Murmansk Oblast);

S — total area of the territory of all territorial units of the region under consideration (Murmansk Oblast);

n — total number of territorial units of the region under consideration (17).

The calculation results are presented in table 1.

Table 1

The degree of uniformity in the location of Orthodox churches in the Murmansk Oblast (2021)

Administrative-territorial unit of the Murmansk Oblast	Number of Orthodox churches (2021)	Territory area, thousand km^2	Calculation results
Alexandrovsk, CATU	5	0.5	0.046832
Apatity	2	2.5	0.002543
Vidyaevo, CATU	2	0.08	0.019637
Zaozersk, CATU	1	0.51	0.006499
Kandalaksha district	3	14.4	-0.07141
Kirovsk	3	3.6	0.004874
Kovdorskiy district	2	4.1	-0.00805
Kola district	19	27.6	-0.00303
Lovozerskiy district	3	53	-0.34385
Monchegorsk	2	3.4	-0.00381
Murmansk	16	0.15	0.160557
Olenegorsk	2	1.9	0.006781
Ostrovnoy, CATU	2	0.46	0.016939
Pechenga district	12	8.7	0.059759
Polyarnye Zori	1	1	0.003037
Severomorsk, CATU	10	0.48	0.09762
Terskiy district	14	19.3	0.005088
Murmansk Oblast	99	141.572	CTC = 0. 430166

If we take into account that the limit values of CTC vary from 0 to 1, the resulting final figure indicates a high degree of concentration of Orthodox churches within the Murmansk Oblast. The concentration of religious infrastructure objects within Murmansk, as well as the Kola, Terskiy, and Pechenga municipal districts is confirmed by the data presented in the second column of Table 2. A number of features and restrictions on the development of religious tourism in the region under consideration are also imposed by the low density of Orthodox churches in the Murmansk Oblast as a whole and in its individual ATUs.

Table 2

Rating of religious tourism destinations in the Murmansk Oblast

Administrative-territorial unit of the Murmansk Oblast	Number of Orthodox churches (2021)	Administrative-territorial unit of the Murmansk Oblast	Density of churches in the ATU of the Murmansk Oblast (thousand km^2 per 1 church)
Kola district	19	Murmansk	0.009
Murmansk	16	Vidyaevo, CATU	0.04
Terskiy district	14	Severomorsk, CATU	0.048
Pechenga district	12	Alexandrovsk, CATU	0.1
Severomorsk, CATU	10	Ostrovnoy, CATU	0.23
Alexandrovsk, CATU	5	Zaozersk, CATU	0.51

Kirovsk	3	Pechenga district	0.72
Kandalaksha district	3	Olenegorsk	0.95
Lovozerskiy district	3	Polyarnye Zori	1
Apatity	2	Kirovsk	1.2
Monchegorsk	2	Apatity	1.25
Olenegorsk	2	Terskiy district	1.38
Ostrovnoy, CATU	2	Kola district	1.45
Vidyaevo, CATU	2	Monchegorsk	1.7
Kovdorskiy district	2	Kovdorskiy district	2.05
Polyarnye Zori	1	Kandalaksha district	4.8
Zaozersk, CATU	1	Lovozerskiy district	17.67
Murmansk Oblast	99	*Murmansk Oblast*	1.43

However, despite the dispersed location of Orthodox religious infrastructure in the Kola North, Orthodox-themed tourist routes are being implemented.

The offer in the market of tourist and excursion routes of the Orthodox theme, focused on internal demand, is concentrated in the pilgrimage spiritual and cultural center “Ascension”, operating since 2002 on the basis of the Holy Trinity Theodorite Kola Monastery in Murmansk, which was called “Under the shadow of Trifon” until June 2021 [3]. There is very little variety: two-day trips to visit the churches of Umba settlement and Varzuga village, located 138 km from each other along the highway, and the first of these settlements is 358 km away from Murmansk.

In addition, trips to the Khibinogorsk Women’s Monastery and the Saint Trifon Pechenga Monastery are organized twice a month on Sundays on a regular basis. In the first case, the list of excursion sites also includes churches in Kirovsk.

The extremely limited thematic diversity of the routes offered by the diocesan pilgrimage service, due to the small number of churches and monasteries of high interest to the target consumers of this service, as well as their dispersed location, is partially compensated by organized visits to events. For example, on July 21, 2021, a trip to the Khibinogorsk Women’s Monastery was timed to celebrate the 75th anniversary of the beginning of services in this monastery. In August of the same year, the opportunity to take part in the consecration of the monument to Saint Theodoret of Kola in the town of Kandalaksha was announced.

In addition to domestic consumers, religious routes or educational routes, including visits to religious sites in the Murmansk Oblast, are also oriented towards tourists from other regions. For example, the Moscow international pilgrimage center “Pokrov” offers a 5-day tour called “Kola Peninsula. Shrines of the Russian North. Here the Earth meets the sky”, which includes an excursion visit to the following settlements: Murmansk – Kola – Kirovsk – Pechenga village –

[3] Pilgrimage Department of the Murmansk Diocese. URL: http://mmeparh.cerkov.ru/palomnicheskij/?ysclid=l9qzzxvl52819622564 (accessed 20 April 2023).

Kandalaksha – Varzuga village – Kashkarantsy village – Umba – Kandalaksha (Murmansk) [4]. The basic price of the service in autumn 2022 was 40 thousand rubles, excluding transportation costs to the starting and final points and is quite competitive.

This route is of a broad educational nature and has a multiplicative effect, as it includes, in addition to religious sites, a sightseeing tour of Murmansk, a visit to the exhibitions of the city local history museum and natural sites, participation in an interactive ethno-program, as well as hotel accommodation and catering.

The offer, focused on demand from tourists from other regions, was expanded due to the 3-day tour package "Russian Lapland: pilgrimage to the "shores of the icy sea": Khibiny, Pechenga, Murmansk" [5], announced as a new product on the market. It involves visiting the shrines of Murmansk, Kirovsk, Monchegorsk, Luostari settlement. The element of attractiveness and variety of this route is given by excursion on special expositions of Polar-Alpine Botanical Garden. Moreover, the announced information indicates the possibility of purchasing plant seedlings.

It is positioned that during the summer season (from June to September) this route was implemented regularly once a month. It includes accommodation in a pilgrimage hotel, two meals a day, as well as relatively close in distance radial routes.

Individual entrepreneurs-tour guides of Murmansk also offer a popular, judging by the number and content of the reviews left, route "Murmansk and Kola: the main cities of the Kola Bay" [6], in which semantic accents, in addition to the historical, local history and ethnocultural components, are also placed on objects of Orthodox religious infrastructure: temples, monasteries, chapels and worship crosses of Murmansk and Kola. This service is aimed at single tourists or mini-groups of up to 6 people, and its cost for the 2022 season is 8100 rubles.

The composition of educational and religious routes in the Murmansk Oblast offered on the market includes a limited list of settlements and sites to visit for excursion.

To reflect the peculiarities of the territorial organization of the considered type of tourism in the region, it is advisable to use a cluster approach, which is characterized by experts as an important tool for integrated territorial management, contributing to the competitiveness of the industry's products [19, Kruzhalin V.I., Menshikova T.N., Kruzhalin K.V.].

Following the Concept of the federal target program "Development of domestic and inbound tourism of the Russian Federation (2019–2025)", a tourist and recreational cluster is proposed to be understood as "concentration on a certain territory of enterprises and organizations integrated into one logistics scheme and engaged in the development, production,

[4] International Pilgrimage Center "Pokrov". URL: https://www.ps-pokrov.ru/poezdki/palomnichestvo_v_rossii/kolskij_poluostrov__svjatini_russkogo_severa.html?ysclid=l9tqggnc8b787058912 (accessed 14 March 2023).

[5] Pilgrimage to Murmansk. URL: http://palomniki.su/countries/ru/g14/murmansk/mode/advertsto.htm (accessed 11 September 2022).

[6] Murmansk and Kola: the main cities of the Kola Bay. URL: https://provodniq.com/excursion/murmansk-i-kola-glavnye-goroda-kolskogo-zaliva (accessed 13 March 2023).

promotion and sale of tourism products, as well as activities related to tourism and recreational services" [7].

Focusing on the content of the main routes of religious themes in the Murmansk Oblast and the results of calculations given in Table 1, it can be stated that within the subject of the Russian Federation under consideration, tourism of a religious orientation has a cluster basis and we can identify clusters, designating them as Murmansk (Murman–Kola), Tersko–Beregovoy and Pechenga. Geographically, they coincide with such municipalities and their parts as the city of Murmansk, Kola, Pechenga and Terskiy districts of the Murmansk Oblast.

The Murman–Kola religious tourism cluster was formed on the basis of the Orthodox religious infrastructure of Murmansk and the Kola district of the Murmansk Oblast. Formally, there are about 20 Orthodox churches and chapels in the regional center [8], but not all of them are of interest to tourists, since most of them are typical buildings of the late 20th–early 21st centuries.

The key object of educational excursion routes around Murmansk is the temple complex of St. Nicholas Cathedral and several other temple buildings that do not have historical and architectural value, but are attractive either due to the surrounding landscape conditions (The Savior on the Waters) or due to sacral significance (Church of All Saints in Vostochnyy).

Of particular interest is such an element of the Murman–Kola religious tourism cluster as the Holy Trinity Theodorite Kola Monastery [9]. Location within the outskirts of Murmansk on an area of 2.5 hectares, used including for subsidiary farming for growing crops, as well as the presence of buildings and premises that can be used for the purpose of leisure and cultural and educational events, overnight accommodation, and organization catering for tourists, allows us to talk about the possibility of creating an Orthodox retreat center on its basis in the future. The latter act as an innovative form of organizing tourism and recreation, created on the basis of monastery or temple complexes and aimed at a wide contingent of recreationists, regardless of their religion [20, Liro J.; 21, Liro J., Sołjan I., Bilska-Wodecka E.].

Christian retreats are positioned as tourism destinations with an emphasis on services, including opportunities to participate in spiritual practices and secluded recreation in a quiet environment. They are widespread and popular in European countries, including Northern ones, but are not currently represented in Russia. Christian retreats can be urban or rural by location, and depending on their spatial organization, they are objectified into sites or centers. Considering the degree of relevance of the problem of import substitution of tourist and recreational services in Russia, including in terms of the need to preserve their diversity, the question of creating Christian retreats, similar, for example, to the one functioning on the basis of the Spaso-

[7] Kontseptsiya federal'noy tselevoy programmy «Razvitie vnutrennego i v"ezdnogo turizma Rossiyskoy Federatsii [Concept of the federal target program "Development of domestic and inbound tourism of the Russian Federation"]. URL: http://static.government.ru/media/files/FoFftF1dhGs4GZzEBPQtLCFVtBl2hHQD.pdf (accessed 10 April 2023).
[8] Murmansk (Murmansk Oblast), churches and monasteries, map. URL: https://sobory.ru/geo/locat/1913(accessed 17 April 2023).
[9] Holy Trinity Theodorite Kola Monastery. URL: https://feodorit.ru/about/architecture/ogorody (accessed 20 April 2023).

Preobrazhenskiy Novo-Valaamskiy Monastery, which gained popularity among Russian tourists before the coronavirus pandemic Russian tourists, becomes urgent.

The Murman–Kola cluster also includes some churches in the Kola municipal district of the Murmansk Oblast. Its center, Kola, which emerged on the site of one of the oldest settlements in the region, is located 12 km from Murmansk and 15 km from the airport, which largely contributes to the active involvement of city religious sites in thematic excursion routes. The main temple of the city, the Annunciation Church, is the most attractive, not only due to its non-standard architectural design, but also because of an architectural monument of federal significance inside — a wooden memorial cross, dating back to 1635, associated with the name of St. Varlaam Keretskiy, who lived on the Kola Peninsula in the 16th century.

The temple consecrated in his honor is also a tourist attraction. What is interesting is not the building itself — a typical religious building of the early 21st century, but its location on an artificial embankment that connected the residential areas of Kola with the Monastyrskyy Island at the mouth of the river of the same name, where several successive Orthodox monasteries were located at different times.

So, the Murman–Kola religious tourism cluster is based on religious sites of Murmansk and its satellite town of Kola. The advantage in its development is the provision of transport infrastructure and the compactness of excursion objects. If we consider the manifestations of the multiplier effect from the functioning of religious tourism, then within the Murman–Kola cluster it is created due to the involvement of museum and exhibition historical and cultural complexes in the maintenance of routes, the use of hotel infrastructure (organized groups are most often offered overnight accommodation in Murmansk), as well as catering establishments.

Radial routes to settlements far from the centre are also most often started from Murmansk. One of the popular places visited by tourists in the Murmansk Oblast is the Terek Coast — part of the southeastern coast of the White Sea from the mouth of the Varzuga to Cape Svyatoy Nos. The Terek-coastal cluster was formed due to the ancient Pomor settlements stretching along this coast, among which Varzuga, Kashkarantsy, Umba, Kuzreka are the most popular among tourists.

The main factor hindering the organization of excursion, educational and religious routes within the designated territory is transport accessibility. The distance to Umba from Murmansk along the highway is 361 km (about 6.5 hours by car), so Kandalaksha is offered as an alternative starting point for thematic tours aimed at visiting Orthodox churches in Pomor settlements [10]. The tour package, in addition to a sightseeing tour of the southernmost city of the Murmansk Oblast, includes a visit to the museum of the Kandalaksha State Nature Reserve, Cape Korabl, etc.

[10] Necklace of the Tersky Coast Murmansk — Kandalaksha — Umba — Kashkarantsy — Varzuga — Korabl — Kuzreka — Kandalaksha — Murmansk. URL: https://www.hometravel.ru/karelia/murmansk/ozerelie-terskogo-berega.shtml?ysclid=laih0ylkdy203014518 (accessed 20 April 2023).

The Orthodox churches of the named Pomor settlements are repositioned as unique objects of wooden architecture and attraction dominants of this route, and tourist interest is formed due to historical and architectural value (one of the Varzuga temple complexes dates back to the end of the 17th century), and in case of its absence it is compensated by integration into other tourist infrastructure. For example, the Church of the Resurrection of Christ in the Umba village was built on the site of a lost one and has no architectural value, but it is part of the circular route of the ecological and local history trail.

Therefore, the Terek–Coast tourism cluster of excursion, educational and religious orientation is characterized by its remoteness from Murmansk, which makes it difficult to organize a radial route to its destinations from this city as a starting point, although it does not exclude it. But in this case, the emphasis is shifting in favor of Kandalaksha and its tourist infrastructure. A characteristic feature of the Terek–Coast cluster is the high degree of integration of natural and ethno-cultural sites into tourist and excursion routes, the key attractions of which are the Orthodox churches of ancient Pomor settlements.

The dominant feature of the Pechenga cluster of educational tourism with a religious orientation is the complex of the Holy Trinity Trifonov Pechenga Monastery built in the village of Luostari. Bus travel time from Murmansk to Luostari is about 2.5–3 hours, which makes one-day excursion and educational routes possible. Historically, the monastery is associated with the town of Pechenga, since its partially preserved buildings were first moved there in the 16th century. The short distances between Pechenga and Luostari make it advisable to include them in the general thematic route.

Certain difficulties for tourist and recreational activities are associated with the regime position of the territories of the Pechenga district, along which the Russian-Norwegian border passes. In conditions of favorable relations between countries, this also created an advantage, since it opened up prospects for cross-border routes.

Like the Holy Trinity Theodorite Kola Monastery, the Pechenga monastery is the northernmost in the world and has the potential to create a Christian retreat complex based on its infrastructure and use the surrounding natural landscapes.

Conclusion

Orthodox monasteries, temples and chapels of the Murmansk Oblast, being represented in a small number, were integrated into tourist and excursion routes of educational and religious orientation. Religious tourism in the region belongs to the niche, and tour packages that can be attributed directly to this type of recreational services are limited. However, their range deserves attention because it is in demand among the target consumer and creates diversity in the market. In addition, a multiplier effect from the implementation of religious routes is recorded, since the package of services includes overnight accommodation for tourists in hotels in Murmansk,

Kandalaksha, Zapolyarnyy, etc., catering in cafes and restaurants, excursion visits to natural and historical and cultural sites.

An analysis of the descriptive characteristics of Orthodox religious infrastructure objects associated with their tourist attractiveness allows us to say that, despite the low level of preservation in the Murmansk Oblast of monasteries, temples and chapels, the buildings and interiors of which are of significant architectural, historical and cultural value, many of them they play a cluster-forming role in the recreational economy.

Based on the results of the calculated value of the coefficient of territorial concentration/diversification, a high degree of unevenness in the placement of churches, monasteries and chapels was revealed, which complicates the planning and implementation of routes, but allows us to justify the identification of three main clusters of religious tourism — Murman–Kola, Terek–Coast and Pechenga.

The restored monasteries of the Kola Peninsula, taking into account the natural landscape conditions within which they are located and the unique status of the northernmost monasteries in the world, can serve as a base for Christian retreat complexes that are popular abroad, but are just awaiting implementation in Russia.

Orthodox churches of the Kola Peninsula are involved in trending infrastructure projects (eco-trail), stimulate inter-industry and intra-industry collaborations, and participate in the implementation of the state's social policy.

The Murmansk Oblast is an example of a region of the Russian Federation, within which tourism of a religious orientation and tourism of an educational orientation with the involvement of religious infrastructure are functioning and have prospects for further development, including innovations, even with the condition that almost all ancient monasteries, temples and chapels in its borders were destroyed during the Soviet period.

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On the Study of the Native Language of the Ob-Ugric Ethnos: Scientific Foundations

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Abstract. The authors of the article consider the issues of the formation of ethno-cultural and national identity on the example of the Ob-Ugric ethnic group living in the Arctic. Much attention is paid to such ethno-cultural component as native language. The problem of bilingualism, as well as the development of communicative competence in native and foreign languages, their practical application in the cultural sphere and social life under the influence of social, pedagogical and psychological factors is topical. Despite living in harsh climatic conditions, the northerners have for centuries cultivated such feelings as responsibility, justice, readiness to help. The authors noted the interest in the deep historical roots of their ethnic group and presented indisputable facts of educating children in the spirit of preserving and increasing values, passing them on to subsequent generations, spreading throughout the world. Based on the analysis of modern ethnopedagogical trends in the educational space of the Ob-Ugric ethnos, some recommendations on the main issues of ethnoculture and folk pedagogy development are presented. The study is based on the ideas of Wilhelm von Humboldt about the spiritual power of people, the role of language in the spiritual development of mankind, the peculiarities of the national character, the thinking of the people, their spiritual nature and way of life, conceptualization of knowledge about the world and the ways of its transmission. The authors assign a special role to ethnopsychology, the science of individual and collective consciousness, and ethnopedagogy, which integrates the ethnocultural component into the system of training sessions and contributes to the formation of a national identity in the younger generation, understanding and preserving the spiritual and moral values and traditions of their people.
Keywords: *ethnoculturology, ethnopsychology, ethnolinguistics, linguoculturology, ethnopedagogy, ethnography, anthropology, indigenous peoples of the North (SIPN), Ob-Ugric ethnos, national identity*

Introduction

The topic is relevant due to the challenges of modernity and is associated with such concepts as the national idea and national identity. It is known that the issue of strengthening the all-Russian civic identity is a key topic at the moment, and the Basic Law of Russian Constitution enshrines the key guidelines of the state national policy, including the preservation of the ethnocultural and linguistic diversity of the country. In addition, as part of the government's preparation of the concept of State language policy, amendments to the Law "On the Languages of the Peoples of

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the Russian Federation" will be adopted on the responsibility of the state for preserving the native languages of the peoples of the country [1].

The basis of the national idea is national identity, which determines the significance of a particular people, ethnic group or nation. It was the national idea that prompted us to talk about the historical mission and the meaning of existence of the Russian people, to characterize the people themselves as a historical and cultural community, to understand their original path of development, spiritual kinship with all the peoples inhabiting our state, as well as their role as part of the world whole.

The subject of the study is language as an ethnocultural component, its development and preservation, as well as the process of acquiring communicative competence skills based on bilingualism. The purpose of the article is to study and describe the factors influencing the study of languages (native and foreign) in the formation of spiritual and moral values and to solve several problems: to consider the influence of language on the spiritual development of humanity (using the example of the ideas of W. von Humboldt), to identify the features and problems of intercultural communications, to justify possible ways to solve them, to describe the system of continuity of educational organizations of Ugra in the field of ethnopedagogy, to prove the need for ethnopedagogical trends in the educational space in order to generalize and disseminate experience, to provide some recommendations on these issues.

The spiritual and cultural traditions of ancient civilizations have been preserved in Russia. Our research is at the intersection and in the interaction of such sciences as ethnoculturology, ethnopsychology, ethnolinguistics, linguoculturology, ethnopedagogy, anthropology. These sciences are closely related to each other, since the object of their research is ethnos, which means "people" in Greek. Already in ancient times, scientists observed differences in cultures, appearance, and mentality of representatives of ethnic groups, many of them tried to determine the nature of identity. Many texts of ancient scientists — Herodotus, Tacitus, Plutarch and Pliny the Elder — describe the peculiarities of the mental behavior of neighboring barbarian tribes and peoples. Among the medieval researchers who made a certain contribution to the development of ethnopsychology as a science, one should name Marco Polo, Ferdinand Magellan, Vasco da Gama, Christopher Columbus, Cortez, Pizarro, Diego de Landa, Amerigo Vespucci, the Russian explorer Afanasiy Nikitin, the Chinese traveler Zhang Qian. All of the above-mentioned chroniclers were navigators, conquerors and explorers; their works are full of descriptions of the psychology of those peoples through whose lands the routes of conquest or research expeditions passed [1, pp. 1–2].

In the works of researchers of the 17th–19th centuries, such concepts as "general spirit" and "spirit of the people" appear. "Volksgeist" is one of the central categories in the concept of W.

[1] Etnopsikhologiya - eto... Opredelenie, istoriya razvitiya nauki, predmet izucheniya, metody [Ethnopsychology is... Definition, history of the development of science, subject of study, methods]. URL: https://fb.ru/article/428477/etnopsihologiya---eto-opredelenie-istoriya-razvitiya-nauki-predmet-izucheniya-metodyi (accessed 21 January 2023).

von Humboldt: “the language of a people is its spirit, and the spirit of a people is its language, and it is difficult to imagine anything identical” [2, p. 171].

These terms were embedded in the features of the national character, the interrelation of mentality, way of thinking, spiritual structure and way of life of an ethnos. Ethnopsychology deals with issues of self-awareness of people of any socio-ethnic community. G.A. Sidorov, writer-historian and traveler, can be named among the researchers of ethnopsychology. His work “Ethnopsychology of the peoples of the former Tartaria” [1, pp. 4–5] reveals the deep foundations of the collective psychology of these indigenous peoples and gives an idea of the ethnocultural world and the traditional way of life of the Tungus, Yakuts, Evenks and Khanty. The author observed the difference between the individual and collective consciousness of ethnic groups and explained why people show certain qualities and character traits in certain situations, for example, Evenks and Evens have extraordinary resilience, endurance and fearlessness. In his work we find the answer: the people received all these qualities from their ancestors. The Tungus ethnic group is rooted in the history of Manchuria, and the Ob Ugrians, together with the Scythians, came from northern Tibet and settled in the Urals. The nomadic way of life of their ancestors, according to the assumption of G.A. Sidorov, passed to the modern Mansi, Khanty, and Yakuts. The ancestors of the Yakuts are the Kyrgyz, Tuvan Chiks, Kurykans and Russian Cheldons. Therefore, it is not surprising that the psychology of the Yakuts is distinctive: on the one hand, this people is somewhat similar to the Slavs, and on the other, they are typical steppe nomads who, by the will of fate, settled in the taiga [1, pp. 5–6].

Wilhelm von Humboldt’s ideas about the language of an ethnos

The German scientist Wilhelm von Humboldt studied the relationship between language and culture of an ethnic group. At present, the problems of the relationship between language and culture in our country are dealt with by such sciences as linguoculturology and ethnolinguistics, the tasks of which coincide. Linguoculturology is focused on the current state of culture and its synchronous representation in linguistic entities, and ethnolinguistics carries out its research on the ethnic material of languages in their retrospective [3, p. 67]. According to the definition of V.A. Maslova, “Linguoculturology is a humanitarian discipline that studies material and spiritual culture embodied in a living national language and manifested in linguistic processes. It allows us to establish and explain how one of the fundamental functions of language — to be an instrument for the creation, development, storage and transmission of culture — is realized. Its goal is to study the ways in which language embodies, stores and transmits culture in its units” [4, p. 30]. Linguoculturology studies language as a cultural phenomenon. The methodological basis of linguoculturology is cognitive linguistics, which relates language and culture to forms of consciousness. The focus of these sciences is on human, considered as a carrier of language and culture. Therefore, the main attention of modern linguists is concentrated on the native speaker as a representative of national culture, a certain social group, who has his own psychological, social and other character-

istics. “Language – culture – personality (ethnicity-person) – self-knowledge” — these are the components that determine the essence of the anthropocentric approach to the study of language and correspond to the general trend of modern humanitarian research [3, p. 67].

W. von Humboldt saw the true purpose of language as an “organ of thought formation” to “serve as an inspirational instrument for newly emerging generations”, since mutual understanding arises not because a certain word expresses the same meaning for all speakers of a given language, but because people “... touch the same keys of the instrument of their spirit, thanks to which everyone’s consciousness flashes corresponding, but not identical meanings” [5, p. 227].

Language is closely intertwined with the spiritual development of humanity and accompanies it at every stage of its local progress or regression, reflecting every stage of culture. The connection of a person with a people, a race and the entire human race is carried out primarily through language. Language is essentially “the property of the entire human race”, “it is in language that each individual most clearly feels himself to be a simple appendage of the human race: Language belongs to me, because what I call it into being is what it becomes for me; and since all of it is firmly rooted in the speech of our contemporaries and in the speech of past generations — to the extent that it was continuously transmitted from one generation to another — the language itself imposes a limitation on me. But what in it limits and defines me came to it from human nature, intimately close to me, and therefore what is alien in language is alien only to my transitory, individual nature, but not to my original nature. Like human himself, each language is an infinity gradually unfolding in time. Through the variety of languages, the richness of the world and the diversity of what we learn in it are revealed to us; and human existence becomes wider for us, since languages in distinct and effective ways give us different ways of thinking and perceiving” [5, p. 228].

The complex of anthropolinguistic problems identified and partly solved by Humboldt is very relevant in modern Russian linguistics, which persistently declares its own anthropocentricity. The indication of the “continuity of ideas” that foreshadowed the interest in human being is not always found in modern literature, therefore the new branch of linguistics, linguopersonology, the object of which is the linguistic personality as a phenomenon of manifestation of the “human factor in language”, can be considered as a very peculiar synthesis of the Humboldt’s “comparative anthropology” and “comparative linguistics”.

The Arctic is the circumpolar storehouse of the planet

The circumpolar Arctic is the main storehouse of the planet, which is called the Far North, the Arctic, and the Tundra with the Arctic Ocean; the attention of the entire planet is drawn to it today. To conquer this harsh region, a person should have a certain level of technology. The indigenous peoples of the North did not try to conquer the North, they radically changed themselves, adapted to live in this region in constant labor and care, which modern people are often incapable of. When the children of Pomors, nomads, and reindeer herders are taught literacy and numeracy

in boarding schools, they are essentially torn away from their native environment and deprived of the skills they need to survive in a harsh climate [2].

The Arctic today is a good example of successful multilateral cooperation between different states and peoples. Due to the fact that in the modern period there are processes related to the industrial development of the North, more and more materials are appearing in the media reflecting positive changes in the northern territories, migration flows are intensifying, tourist and excursion routes related to the study of history, culture of the small peoples of the North are being developed and are very popular, the problem of improving the communicative competence of pupils and students, improving their philological training arises. Teachers of foreign languages, as well as native languages, are faced with the task of forming a personality that can adapt to modern conditions and be able to participate in intercultural communication. The government of the Khanty-Mansiysk Autonomous Okrug—Ugra has legislatively enshrined initiatives aimed at supporting ethnopedagogy and ethnic education of Khanty, Mansi, Nenets and other indigenous peoples' children. The educational direction on the territory of Ugra has its own characteristics and developments, which we would like to share in this article. The harsh climate and special economic and fishing activities have had and continue to influence the socio-economic development of the region, creating a unique system of education that harmoniously fits into the modern traditional way of life of the small indigenous peoples of the North (SIPN).

Formation of the national culture of the Ob-Ugric peoples

The process of formation of the national culture of the SIPN living on the territory of Ugra covers huge time layers, as well as all spheres of life of these peoples, including historical factors, primarily related to migration flows, territories of placement and management, assimilation processes, natural and climatic factors, geographical environment, climate change, landscape features, hydrosystem, the presence and extraction of minerals, the need to adapt to difficult living conditions. L.R. Berezina in her research calls this culture "rational, archaic, unique" [6, p. 638]. According to E.G. Fedorova, "the process of formation of the culture of the Ob-Ugric peoples is a combination of different cultures, the origins of which lie in the cultures of the taiga settlements of Western Siberia, cattle breeders of the forest and forest-steppe zones, as well as other peoples with whom the Ob Ugrians neighbored at different stages of their history" [7, p. 75].

In the 18th–20th centuries, many scientists (G. Novitskiy, A.M. Kastren, A. Reguli, U.T. Sirelius, A. Ahlquist, B. Munkacsi, K.F. Karjalainen, A. Kanisto, A.A. Dunin-Gorkavich, V.N. Chernetsov, V. Steinitz, Z.P. Sokolova, etc.), including those belonging to the Finno-Ugric group, collected data related to the culture and ethnography of the indigenous peoples, and described them.

The researchers note that the culture of the Ob-Ugric groups is a striking example of a combination of various ethnocultural features that unite material and spiritual cultures. It is well

[2] Eroshkin A.S. Tsirkumpolyarnaya Arktika. Okhota na slova [Circumpolar Arctic. Word hunt]. URL: https://proza.ru/2019/10/02/858 (accessed 21 January 2023).

known that the main types of ornaments made on birch bark, chess-fur mosaics from different types of fur were created by the Ural-Siberians; the cut of embroidered clothing is very similar to the clothes of the inhabitants of Kazakhstan and Central Asia; the image of a bear (as the image of an Iranian hero), costume details, the use of metal tools, and horse riding are associated with Iranian traditions; Sargato-Sarmatian influence was noted, a population that was a neighbor of the Scythian state and later moved to the southern regions of Western Siberia.

Thus, the peculiarity of the material and spiritual culture of the Ob Ugrians is the persistence and constancy of ethnic traditions, the origins of which lie in deep antiquity. These traditions were formed on other territories and in other natural conditions, but turned out to be so resilient that they changed little in the process of adaptation to the new environment, which began several centuries ago [5, p. 638]. It was the resource-rich taiga that for centuries provided the local population with the opportunity to live through hunting, fishing, and gathering, while for other peoples the taiga was considered unattractive for living.

Modern teacher-researchers Bakieva O.A., Bagapova N.V., Kolchanova E.A., Shokhov K.O. consider a wide range of educational problems related to the development of children of indigenous peoples of the North. The main attention in their work is paid to the possibilities of education and upbringing through traditional art, artistic and museum activities. According to the authors of the study, the integration of the ethnocultural component into the system of classroom and extracurricular activities contributes to the formation of national identity among the younger generation, understanding and preservation of the spiritual and moral values and traditions of their people [8].

Ethnopedagogical trends in the educational space of SIPN

The system of education verified by centuries and generations is the basis of modern ethnopedagogy, which, as folk pedagogy, has absorbed centuries-old knowledge of indigenous minorities, habits, concepts, traditions, customs that help students understand natural phenomena, the connection between people's lives and work, and the basic principles of intercultural communication.

Despite the fact that much traditional knowledge was lost as a result of severe deformations to which the culture and way of life of the indigenous peoples were subjected in the 1930s–1950s, in various psychological, pedagogical, sociological studies, the increasing role of ethnic factors in the formation of personality and the strengthening of the interaction of ethnic cultures is noted. According to T.A. Grosheva [9, p. 5], in philosophy, pedagogy, psychology today there is a certain experience on the problems of developing communicative competence among students in the conditions of the traditional way of life of SIPN on the territory of Ugra, which is described in the works of E.D. Aipin, V.I. Baymurzina, G.I. Baturina, A.S. Belkin, A.L. Bugaeva, M.S. Vasilyeva, G.V. Volkov, E.V. Korotaeva, G.F. Kuzina, V.M. Kulemzin, V.M. Kurikov, A.M. Sagalaev, T.G. Kharamzin and others.

Ethnopedagogy, which fosters in children a sense of dignity, benevolence, respectful attitude to people and the surrounding nature, readiness to help any living creature, allows to accu-

mulate and transmit pedagogical experience from generation to generation. The main tasks of ethnopedagogy are: differentiated education of boys and girls; attracting children to work at an early age; socialization; teaching national-Russian bilingualism, which will facilitate easier learning of a foreign language in the future; the formation of such qualities as independence, responsibility, self-development and others necessary for a child's communication in any team.

Ethnopedagogy contains various educational and upbringing technologies that take into account local characteristics and capabilities, including a differentiated approach to the educational process, practical teaching methods, in which the main form is independent work, including the development of creative projects, filling out technological maps, using reference books, scientific popular literature, information and communication resources.

The most popular forms of mastering ethnocultural values on the territory of Ugra are "pedagogical workshops", health-saving technologies, elements of museum pedagogy using local history material, and extracurricular general educational activities that include a sociocultural component. Thus, ethnopedagogy is aimed at the peculiarities of the way of life of the SIPN, the methods of cultural development, the involvement of the indigenous peoples in the regional community, and the preparation of children for life in a multicultural society.

Continuity and consistency play a very important role in teaching languages, especially in the formation of communication skills. If a child has been familiar with a second language since childhood and has acquired skills in using two languages or a second language, then the bilingualism of such a child can be classified into two types: either it is communicatively initiated bilingualism, or it is educationally spread one [10, p. 112].

Bilingualism: problems and prospects

Bilingualism is a child's fluency in two languages (native and non-native) and their alternate use in everyday life, and the use of languages does not interfere with each other. Spontaneous childhood bilingualism arises from the need of children, often of different ages, speaking different languages, for mutual communication. There is a so-called educationally widespread bilingualism, when at a certain age the study of a native or foreign language begins. The problem is that bilingualism formed at an early stage of a child's development does not always continue outside the educational organization. Communication skills acquired at school sometimes do not provide students with the opportunity to use them as a means of mutual communication. When students, in order to receive further (professional) education, plan to move from their native village, where their communication took place in their native language, to a city where communication is carried out in another language (for example, Russian), the motivation to study their native and foreign languages sharply decreases. The solution to the problem is to create on the territory of Ugra such conditions for maintaining a holistic and homogeneous cultural and linguistic environment in which young people from among the indigenous minorities will continue their studies in an educational institution, using their skills and abilities. The system of continuity of educational organiza-

tions built by the regional government using the example: kindergarten – school – college – university, continuity of teaching native and foreign languages in all educational organizations throughout the entire period of study within the framework of approved curricula increase the effectiveness of language teaching and students' confidence in the need to use them.

Regional and local authorities organize the implementation of a high-quality educational process, increasing the professionalism of teachers, engaging in their timely retraining, ensuring the organization of the educational process with the necessary sets of teaching aids, assessing their effectiveness and timely replacement of outdated manuals.

The formation of communicative competence in native languages also occurs outside educational organizations under the influence of social, pedagogical, and psychological factors. A vivid example is the activities of regional and local groups, such as: the theater of the Ob-Ugric peoples "Sun", television programs and broadcasts "Ugric Heritage", "Severnyy Dom", "Uvas Mir Putar" ("Word of the Peoples of the North"), "Yugorskiy kolorit", "Yomvosh shunyang yoh" (stories about indigenous people), publication of the journal "Bulletin of Ugric Studies", books, anthologies in native languages, development of educational and methodological complexes in ethnography, Khanty, Mansi, Nenets languages, active use of IT technologies , publication of electronic collections on ethnocultural topics, as well as the following events: Bear Games, Crow Day, Reindeer Herder Day, Region Day, Lunar Treat Festival, Elk Festival and others, when indigenous peoples pass on their traditions, values, foundations to the new generation, where children show their communicative competencies in their native language, receive additional motivation to study their native languages, and use the opportunity to become more sociable, active, and learn to interact in a team. Important factors in this direction are additional classes, electives, participation in folk language festivals, linguistic Olympiads in native languages, global dictations, author meetings with famous writers and poets, ethnocultural summer recreation programs at camps, master classes, oral journals and roundtables, debates and discussions, folk games and competitions, folk art; it is important to listen to folk tales, study folk proverbs, sayings, riddles, music, play folk instruments, during which teaching activities are organized in such a way that every child feels included in the creative process, which also has a positive impact on the formation of communicative competence, makes them proud of knowing their language and culture, allows them to honor and preserve the traditions of the indigenous peoples [11, p. 423].

Conclusion
On the need to preserve and develop ethnocultural education and native language

The idea that language is the soul of any nation is very important, and in the case of the indigenous peoples, the peculiarity of the form of human community, based on the parity interaction of human and nature [12, p. 12], and not on the assertion that man is the king of nature, is clearly manifested. Since Russia is a multinational country, its distinctive feature is the presence of multicultural education, that is, ethnocultural education, where language and culture necessarily

imply respect and interest in other languages and cultures. Ugra is a region where ethnocultural education is considered ethnoregional, based on the richness of the cultures of the peoples living here, especially the SIPN. They have a predisposition to figurative and symbolic thinking, to creating a holistic figurative picture of the world. Obviously, in the future of development and further modernization of culture, the traditional, holistic should continue to exist in society in parallel with the modernized, rationalized, technologized as the foundation of culture [12, p. 13] in order to preserve ethnic individuality and continuity. Russian education has to solve many problems in matters of ethnic education.

In order to obtain good communication skills in native and foreign languages, it is necessary to fulfill all the above conditions. According to A.A. Burykin, in the absence of a communicative environment, there is no language attraction [10, p. 120]. Currently, educational strategies for indigenous peoples are aimed at introducing them to their native language and traditional national culture; however, it is necessary to note the insufficient level of development of various methodological recommendations for the formation of communicative competence among indigenous children. There is a need for legal regulation of the situation of the native languages of the indigenous peoples, the creation of ethnopedagogy programs using new innovative technologies for the development and preservation of language and culture, as well as special programs to improve the ethnological qualifications of many specialists working in the social sphere, primarily teachers, the introduction of the subject of ethnography in educational institutions, the active use of distance forms in the implementation of educational ethnopedagogy programs, and the development of fruitful cooperation with the local community. Currently, there is a growing interest in the culture of their peoples, a revival of folk traditions and rituals, but despite this, the problem of introducing a child to the origins of folk, national culture remains relevant and requires further study and search for effective ways to form communicative competence, educate and instill a sense of respect for the cultural and spiritual values of each nation. The most unique thing is that language is the accumulator and keeper of knowledge in a constantly changing world; it is language that plays the main role in the conceptualization of the human world [3, p. 68].

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Shrinking Cities of the Russian Arctic: Statistical Trends and Public Discourse on the Causes of Population Outflow

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Abstract. The purpose of the article is to determine the most significant causes of population decline in the regions of the Russian Arctic. The object of the study was the urban population of the subjects of the Russian Arctic. The concept of a shrinking city, which has received various interpretations both in foreign and domestic scientific thought, was chosen as a theoretical framework for understanding the problem. In this article, the shrinkage of cities is understood as a cumulative result of economic and demographic factors that cause population decline in the form of natural loss and migration outflow. On the basis of statistical data, a steady demographic decline was recorded in the cities of the subjects of the Russian Arctic. This made it possible to confirm the validity of the use of this concept in relation to these territories. Based on the materials of domestic and foreign studies, the most general, systemic factors of population decline in the regions of the Russian Arctic were identified, such as: the historical context and the policy of Soviet industrialization, the specifics of the local (regional) identity of the inhabitants of the northern territories, global demographic trends. At the empirical level, a more detailed analysis of the subjective perception of the reasons for the outflow of the population from the Murmansk Oblast, reflected in the public discourse of the participants of the online community of the city of Murmansk in the social network VKontakte, was carried out. The initial analysis base included posts and comments of the community for 2021–2022 (a total of 23.817 posts and 926.583 comments), the target sample included 268 posts and 2621 comments. Open and axial coding techniques were used to identify three groups of urban development issues as causes of the outflow of population from the region: 1) natural and climatic conditions, 2) quality of life, 3) prospects for the development of the city. Quantitative analysis of the number of comments (under posts) and likes (under comments) allowed us to identify the most significant and persistent problems, which, of course, are of increased interest to representatives of municipal and regional authorities.
Keywords: *shrinking cities, Arctic Zone of the Russian Federation (AZRF), Murmansk Oblast, population outflow, public discourse, online community*

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Introduction

Despite the growing interest in the topic of shrinking cities, it is necessary to note the lack of both a generally accepted definition of shrinking cities and a general theory of this process. Attempts to define and conceptualize shrinking cities are widely used in the scientific literature, but remain controversial [1, Olsen A.]. Depending on what aspects and points of view are studied, the term "shrinking city" can refer to completely different objects and problems: from the economic competitiveness of the city on a global scale to serious social problems such as marginalization, segregation, crime and poverty [2, Wu C.T. et al., p. 392].

In the scientific literature, the most common definition of a shrinking city remains its understanding as a municipal unit with a minimum population threshold of 10.000 inhabitants, which is experiencing population decline for more than two years and is undergoing economic transformation with some symptoms of structural crisis [3, Pallagst K. et al.; 4, Wiechmann T.]. In this approach, a characteristic feature of shrinking cities is a steady loss of population, and most often the research focus is on demographic problems and structural crisis [5, Haase A. et al.; 6, Haase A. et al., 7, Bernt M.; 8, Hollander J.B.].

Population decline occurs against the background of the preservation of borders and the urban model [9, Oswalt P., Rieniets T.; 10, Grossmann K. et al.]. The logical consequence of the above is a change in the requirements for the urban landscape and infrastructure, which were originally planned for a different population size [11, Weaver R., Knight J.]. Structural crises and deindustrialization are often mentioned in the context of urban shrinkage [8, Hollander J.B.]; however, their occurrence and intensity vary greatly across countries and regional contexts.

The research of Antonov E.V. and others is devoted to the problem of shrinking cities, focusing on decline as a cumulative effect at the local level of economic and demographic factors, as well as changes in the settlement system. Using the example of cities in the Komi Republic, the authors analyzed the process of functioning of northern cities in conditions of a significant population decline [12]. Attention should be paid to the works of researchers Gunko M.S., Eremenko Yu.A., Batunova E.Yu., who propose a quantitative criterion for analyzing shrinking cities with a population decline of 25% or more (since 1989), which corresponds to about 1% per year [13]. Theoretical approaches to the phenomenon of shrinking (declining) cities and foreign experience of management under shrinking conditions are presented in the works of Brade I. and Plisetsky E.E. [14; 15]. It should be noted that in the Russian scientific tradition, as well as in the foreign one, there is no single approach to defining the concept of shrinking cities. The scientific literature most often uses "decreasing", "shrinking", "declining", "depressive", etc. as synonymous concepts.

In this paper, the decline of cities is considered as a cumulative result of economic, demographic factors affecting the settlement system [16, Rink D. et al.]. An indicator of a city's decline is a reduction in population (both as a result of natural decline and migration processes).

However, the concept of urban shrinkage includes not only a reduction in population, but also numerous consequences that are manifested in the appearance of empty housing, excess in-

frastructure and economic distress, in general increase in the imbalance between supply and demand in various areas. Urban shrinkage has consequences in almost all spheres of urban life — from municipal budgets, land use and urban planning, communal and social infrastructure, housing market and residential mobility, labor market and employment, to such characteristics of urban communities as inclusion, the role of neighborhood contacts, cohesion [12, Antonov E.V. et al.].

Statistical trends of population decline in the regions of the Russian Arctic

The object of this study is the cities of the Arctic zone of the Russian Federation, which over the past three decades have had a steady trend of intense population decline (data are presented in Table 1).

Table 1

Permanent urban population in the regions of the Russian Arctic (persons, average per year)

	1990	2000	2010	2020	2022
Republic of Karelia	646 667	544 427	502 994	495 941	421 853
Komi Republic	943 979	791 558	695 682	639 397	566 906
Arkhangelsk Oblast	1 159 076	1 032 473	929 011	891 101	784 247
Nenets Autonomous Okrug (Arkhangelsk Oblast)	33 074	25 554	28 411	32 743	30 785
Arkhangelsk Oblast (except Nenets Autonomous Okrug)				858 358	753 462
Murmansk Oblast	1 088 977	859 691	739 411	679 298	616 034
Yamalo-Nenets Autonomous Okrug (Tyumen Oblast)	395 158	414 249	444 422	458 078	433 540
Krasnoyarsk Krai	2 335 784	2 265 499	2 157 502	2 219 640	2 266 588
Republic of Sakha (Yakutia)	745 317	615 345	615 693	646 889	669 353
Chukotka Autonomous Okrug	116 211	39 730	32 868	35 608	33 003

In terms of urban population, the subjects of the Arctic zone can be divided into two types. The first is the subjects that are fully included in the AZRF, among them the Murmansk Oblast is the leader in terms of urban population. The second type is the subjects that are not fully included in the AZRF, with the Krasnoyarsk Krai having the largest urban population and the Nenets Autonomous Okrug having the smallest one.

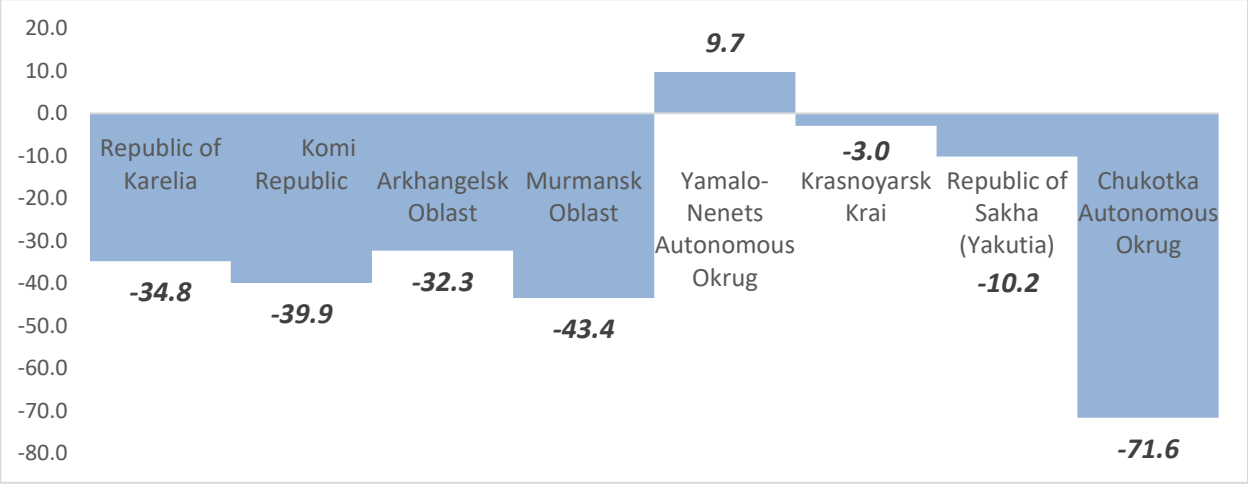

Fig. 1. Dynamics of the urban population of the AZRF subjects (2020 compared to 1990, in %).

Over 30 years, the cities of the Chukotka Autonomous Okrug (-71.6%) and the Murmansk Oblast (-43.4%) have suffered the greatest population losses. Growth is observed only in the Yamalo-Nenets Autonomous Okrug (9.7%) (see Fig. 1).

The natural increase rate has been steadily declining and reached a negative value in 2020 (see Table 2).

Table 2

Coefficient of natural population growth by the constituent entities of the AZRF (per 1000 people) [1]

	2015	2016	2017	2018	2019	2020	2021
Arctic zone of the Russian Federation	*3.9*	*3.1*	*2.2*	*1.5*	*0.7*	*-1.0*	*-3.6*
Republic of Karelia	…	…	-10.7	-13.0	-12.5	-15.2	-14.7
Komi Republic	3.6	0.9	1.3	0.6	-1.1	-2.5	-4.5
Arkhangelsk Oblast	0.3	-0.5	-1.3	-2.3	-3.3	-5.5	-9.0
Nenets AO	8.4	9.6	6.6	5.1	4.7	3.4	0.4
Murmansk Oblast	0.3	-0.3	-0.8	-1.5	-2.4	-4.7	-7.6
Yamalo-Nenets AO	11.3	10.1	9.1	8.7	7.9	6.9	6.3
Krasnoyarsk Krai	8.3	7.3	6.6	6.3	6.0	5.0	3.4
Republic of Sakha (Yakutia)	6.0	7.0	5.2	4.5	3.3	2.8	0.8
Chukotka AO	4.1	3.6	3.7	1.6	1.4	0.4	-0.7
For reference: Russian Federation	*0.3*	*-0.01*	*-0.9*	*-1.6*	*-2.2*	*-4.8*	*-7.1*

In 2021, the natural decline in the AZRF constituent entities amounted to 3.6 permille, which is generally significantly lower than the all-Russian level (-7.1). The Republic of Karelia (-14.7), the Arkhangelsk Oblast (-9.0) and the Murmansk Oblast (-7.6) suffered the greatest losses as

[1] Natural population growth rate in the Arctic zone of the Russian Federation per 1000 population. URL: https://rosstat.gov.ru/storage/mediabank/pok_84_2022.xlsx (accessed 02 April 2023).

a result of natural population loss. In these subjects, the coefficient value exceeds the all-Russian level. The most favorable situation is observed in the Yamalo-Nenets Autonomous Okrug, where natural increase has been maintained during 2015–2021, with the coefficient value steadily decreasing (from 11.3 in 2015 to 6.3 in 2021).

The migration growth rate is characterized by a reverse trend (see Table 3). During 2015–2021, there has been a decrease in migration loss — from -9.6 in 2015 to -1.0 in 2021. Despite this, the migration situation in the regions of the Russian Arctic remains quite difficult. For comparison: the all-Russian migration growth rate has a positive value and amounted to 2.9 permille [2].

Table 3

Coefficient of migration growth of the population by the constituent entities of the AZRF (per 1000 average annual population) [3]

	2015	2016	2017	2018	2019	2020	2021
Arctic zone of the Russian Federation	*-9.6*	*-5.9*	*-6.0*	*-5.1*	*-3.8*	*-3.0*	*-1.0*
Republic of Karelia	…	…	-15.5	-15.4	-13.8	-1.7	-3.0
Komi Republic	-22.0	-18.0	-36.3	-34.3	-20.9	-3.4	-5.4
Arkhangelsk Oblast	-3.3	-3.1	-4.7	-3.7	-0.7	-0.6	0.03
Arkhangelsk Oblast (except Nenets Autonomous Okrug)	-3.6	-2.8	-4.7	-3.4	-0.9	-0.8	-0.2
Nenets Autonomous Okrug	2.3	-7.3	-5.3	-8.9	1.8	2.9	3.1
Murmansk Oblast	-5.7	-5.7	-4.6	-5.9	-6.5	-6.0	-3.9
Yamalo-Nenets Autonomous Okrug	-22.3	-6.5	-4.5	-3.2	-2.4	-2.0	3.0
Krasnoyarsk Krai	-6.8	-8.8	-3.3	-2.1	-3.9	-1.7	-0.4
Republic of Sakha (Yakutia)	-9.3	-3.8	-13.0	-5.4	-3.4	-0.6	-10.8
Chukotka Autonomous Okrug	-11.7	-10.3	-13.2	4.8	11.1	-15.2	11.1

Among the subjects of the Russian Arctic, the Republic of Sakha (Yakutia) (-10.8), the Komi Republic (-5.4), Murmansk Oblast (-3.9) and the Republic of Karelia (-3.0) suffered the greatest losses as a result of migration loss — the coefficient value exceeds the average level for the subjects of the Russian Arctic. The most favorable situation is observed in the Chukotka Autonomous Okrug (11.1), while an extremely unstable situation is noted here during 2015–2021 (for example, in 2020 the value was negative and amounted to -15.2 permille).

[2] Shcherbakova E. Migratsiya v Rossii, predvaritel'nye itogi 2021 goda [Migration in Russia, preliminary results of 2021]. URL: http://www.demoscope.ru/weekly/2022/0937/barom04.php (accessed 02 April 2023)

[3] Natural population growth rate in the Arctic zone of the Russian Federation per 1000 population. URL: https://rosstat.gov.ru/storage/mediabank/pok_84_2022.xlsx (accessed 02 April 2023).

Factors of population decline in the regions of the Russian Arctic

When analyzing the causes of population decline of the study area, it is necessary to pay attention to the factors influencing this process.

Firstly, it is worth pointing out the historical context of the emergence of Arctic cities. Most of the settlements that belong to the Russian Arctic appeared as a result of the Soviet industrialization policy aimed at the resource development of remote territories and the dispersal of the industrial potential of the Soviet state [17, Meerovich M.G.]. The first stage chronologically falls at the end of the 1920s–40s, when predominantly small industrial towns (monotowns) associated with coal mining, metallurgy and timber industry emerged in the North. The massive settlement of the Far North was directly related to the repressive nature of Soviet policy. Special contingent consisting of prisoners, including political and special settlers who were deported from various areas for social (for example, dispossessed kulaks) or ethnic (Caucasians, Germans, Koreans, etc.) reasons were brought to build settlements and resource industries. By the end of the 1930s, an entire settlement network consisting of many dozens of special settlements and correctional labor camps had been formed throughout the European North.

The second stage is the 1950s — the emergence of large infrastructure centers associated with the operation of ports and large railway hubs, for example, Magadan, Norilsk, Inta, etc. [18, Averkieva K., Efremova V.]. Since the mid-1950s, the nature of settlement changed radically: first of all, this was due to the announcement of a general amnesty in 1953 and the voluntary nature of the resettlement of civilian specialists, mainly coming to the north for material reasons because of the benefits that implied polar allowances, affordable housing, long vacations and a “northern” pension. As cities anticipated the migration influx, they were, on average, provided with better infrastructure and housing.

Socio-economic restructuring that began in the 1990s led to the closure or privatization of city-forming enterprises, which directly affected the reduction of employment, lower wages, and, together with the reduction of subsidies and the high cost of living, influenced the intensive outflow of population from northern cities. Thus, the artificially created northern cities, as a result of the settlement policy of the Soviet state, were not ready to integrate into the new capitalist reality, which resulted in “stress migration” [18, Averkieva K., Efremova V.].

The second factor of shrinking of Arctic cities is due to the fact that no rooted host community with a stable local identity has emerged on their territories. The temporary nature of settlement only aggravated the erosion of the local identity of non-northern residents [19, Razumova I.A.; 20, Burtseva A.V., Sharova E.N., Oman S.; 21, Matveeva E.G., Petrov N.V., Petrova N.S.]. The strategy of life in these cities was to earn money and return or move to more southern regions upon retirement [22, Razumova I.A.].

Despite the importance of economic restructuring in the emergence and formation of shrinking cities, demographic structures and natural population changes should not be underestimated [23, Wolff M.; 4, Wiechmann T.]. The third factor of the reasons for the decline concerns

the trend that began in the late 1980s and is associated with a decrease in fertility and intensive ageing of the population [24, Kashnitsky I. et al.; 25, Ba-tunova E., Perucca G.]. This trend is worldwide and is defined as a demographic transition [26, Lesthaeghe and Van de Kaa D.]. The demographic structure of Arctic cities reflects this trend in full. Moreover, the migration decline concerns the economically active population, which reinforces the predominance of older age groups in the age structure of Arctic cities.

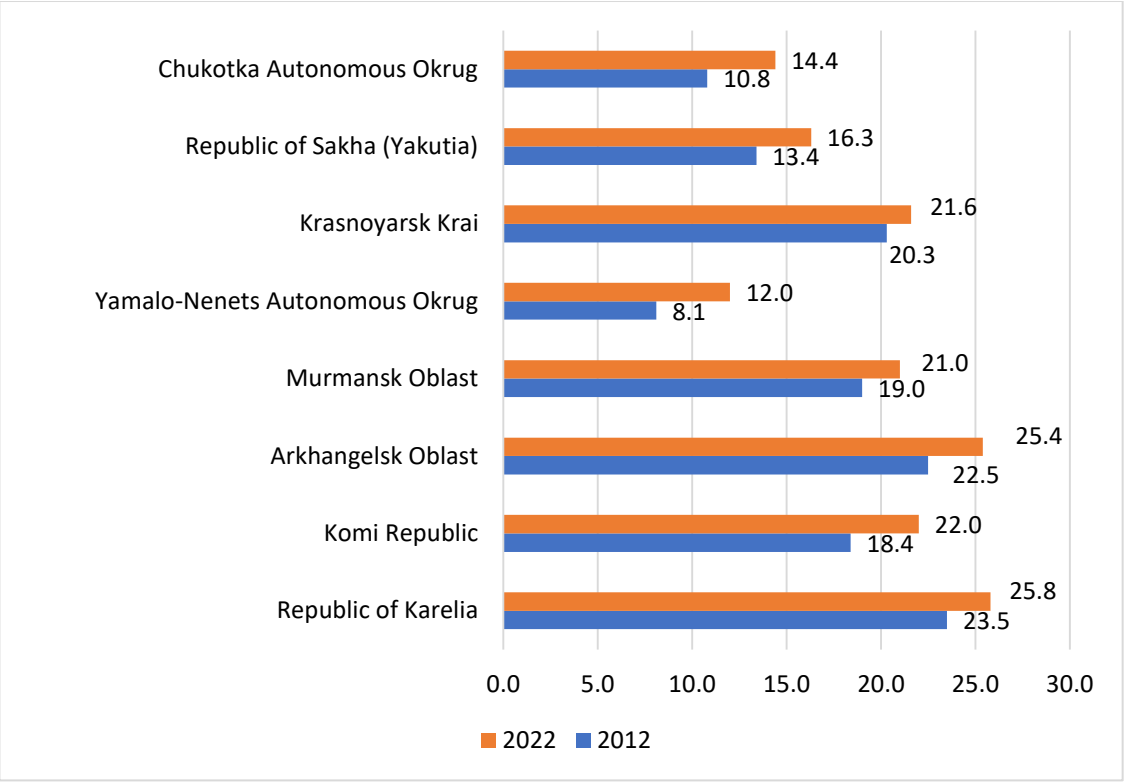

Fig. 2. The share of the permanent population above working age in dynamics for 2012–2022 (as of January 1), in % [4].

The share of the permanent population over working age increased by 2.8% on average and amounted to 19.8% (see Fig. 2). This share is comparatively higher in the Republic of Karelia (25.8%) and the Arkhangelsk Oblast (25.4%), and lower in the Yamalo-Nenets Autonomous Okrug (12.0%) and the Chukotka Autonomous Okrug (14.4%).

[4] Structure of the resident population at the beginning of the year (January 1) by gender and age groups. URL: https://www.fedstat.ru/indicator/43219 (accessed 02 April 2023).

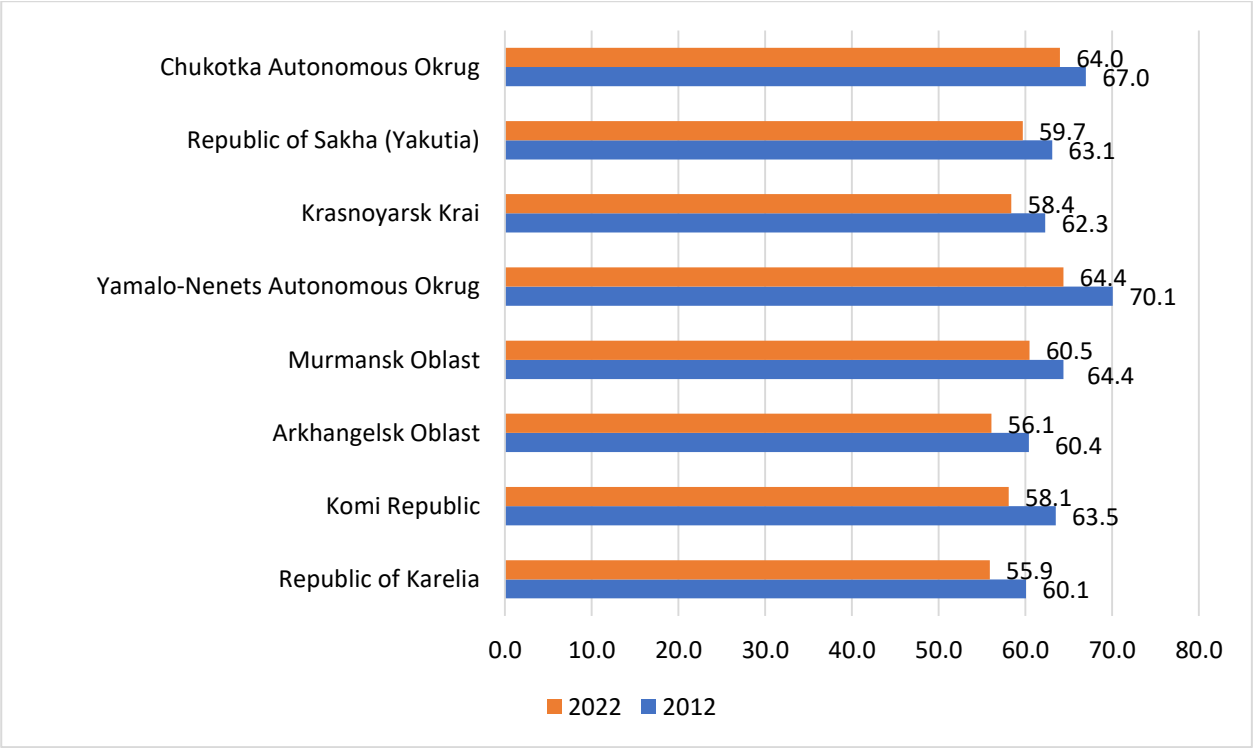

Fig. 3. The share of the permanent working-age population in dynamics for 2012–2022 (as of January 1), in % [5].

The share of the permanent working-age population decreased by an average of 4.2% to 59.6% (see Fig. 3). This share is comparatively higher in the Yamalo-Nenets Autonomous Okrug (64.4%) and the Chukotka Autonomous Okrug (64.0%), and lower in the Republic of Karelia (55.9%) and the Arkhangelsk Oblast (56.1%).

The process of depopulation, which occurs in most Arctic cities, is associated with such socio-economic consequences as a decline in investment attractiveness, shrinking labor market, increasing unemployment, erosion of human capital, reduction of local budgets, including tax deductions to budgets, increasing problems in the development of urban infrastructure (for example, the growth of emergency and dilapidated housing, deterioration of communal infrastructure, road funds, deterioration of the crime situation, etc.) [15, Plisetsky E.E.].

Today, demographic losses form an important part of the management agenda in almost all Arctic regions. However, counteracting depopulation is the only possible strategy at all levels of management [27, Batunova E., Gunko M.]. For example, the Murmansk region has a strategic plan "Live in the North!", one of the goals of which is to retain the population in the region. In terms of urban planning and management, municipal authorities are much more focused on small-scale urban development and beautification projects that require modest funding and bring immediate political benefits [28, Zupan D., Gunko M.], as opposed to comprehensive renewal projects for shrinking cities that suffer from underfunding, staff shortages and deteriorating infrastructure.

In the empirical part of the study, we focused on the subjective perception of city residents about the main urban problems that influence their migration sentiments. The object of empirical

[5] Structure of the resident population at the beginning of the year (January 1) by gender and age groups. URL: https://www.fedstat.ru/indicator/43219 (accessed 02 April 2023).

research was the city of Murmansk, one of the most intensively losing population cities in the Arctic zone of the Russian Federation. Murmansk is the administrative center of the Murmansk Oblast, which is completely included in the Arctic zone of the Russian Federation. The city was founded in 1916, but its intensive development began in the post-war years. The economic specialization of the city is directly related to the peculiarities of its geographical location, which determined its position as a port and outpost city. Today, traditional industries for Murmansk — fishing, fish processing, maritime transport, ship repair — are experiencing the crisis consequences of the economic transition period of the early 1990s. The social sphere and infrastructure of the city are characterized by serious problems and are the objects of increased managerial attention. The dynamics of the city's population are characterized by a long-term negative balance (see Fig. 4).

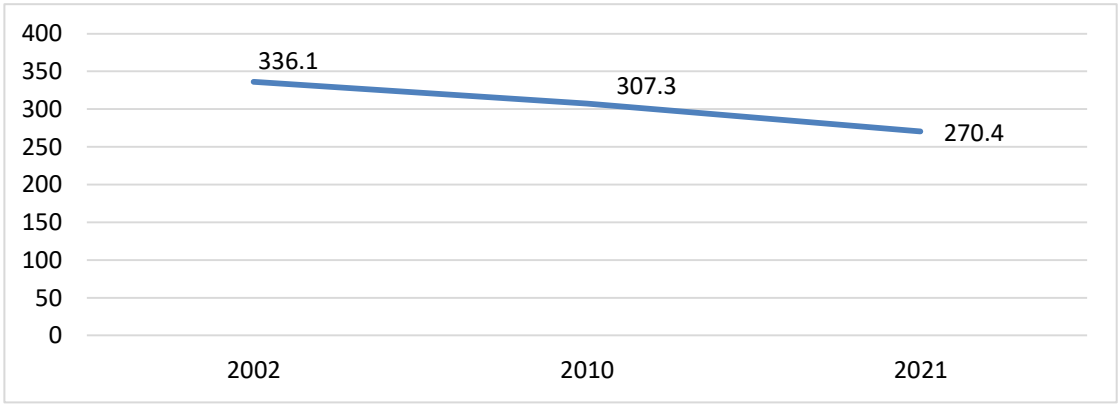

Fig. 4. Population of the city of Murmansk according to the results of the population census of 2002, 2010, 2021 (thousand people) [6].

According to the results of the 2020 census, the permanent population of the city of Murmansk as of October 1, 2021 amounted to 270.4 thousand people, decreased by 12% compared to 2010 and by 20% compared to 2002.

Characteristics of the empirical base of the research

The methodology for analyzing the subjective perception of residents is based on identifying problematic conceptualizations of the state of urban life, reflected in the public discourse of online communication. In this study, public discourse is understood as the totality of reflective knowledge and reactions of individuals about any phenomena and facts that are submitted for wide (including mass) discussion [29, Klyuev Yu.V., p. 336–337]. Quantitative and qualitative discursive characteristics of the problems discussed are important from the point of view of the theory of discourse analysis. For example, the theory of discourse analysis by T.A. Van Dyck [27; 30] connects the reproduction of texts, the cognitive ability of individuals and their social environment. Subjective perceptions of urban development problems are manifested in the discourse of

[6] Results of the 2002 All-Russian Population Census. Rosstat. URL: http://www.perepis2002.ru/index.html?id=13 (accessed 02 April 2023); Results of the All-Russian Population Census 2010. Murmanskstat. URL: https://murmanskstat.gks.ru/storage/mediabank/13.doc (accessed 02 April 2023); Results of the All-Russian Population Census 2020 (as of October 1, 2021). Murmanskstat. URL: https://murmanskstat.gks.ru/storage/mediabank/1.4(6).xlsx (accessed 02 April 2023).

communities through interpretations, assessments, and descriptions of personal experiences that residents represent during discussions. They can be considered as qualitative characteristics of the subjective image of the city and the experience of living in it, since they reflect community-specific attitudes, preferences, phobias towards the city and city/regional government, and also reflect the local language that is formed by the community to describe the surrounding context. In this paper, using empirical material from the digital urban community, we will demonstrate the formation of qualitative characteristics of urban development in public discourse, focusing on the subjective perception of citizens' "pain points" that influence or explain migration sentiments and intentions. The number and intensity of mentions of various problems, the duration of their discussions, support for specific messages by the number of "likes" can also be considered as quantitative characteristics of the discourse about urban development problems [31, Nenko A.E., Nedoseka E.V.].

As empirical material, this article examines text messages reflecting the public discourse of the online community of Murmansk, active at the time of writing this paper. In the process of selecting the online community for analysis, groups on the social network VKontakte were considered. The community selection criteria were as follows:

- urban community, thematically dedicated to the city of Murmansk, its history, problems and events;
- high popularity of the community in the information field (determined by the search query method in the VKontakte search aggregator);
- constant high intensity of communication within the community (at least 2 posts per day over the past year);
- discussion of city problems on the community wall;
- history of the community (at least 5 years);
- positioning the community specifically as local (urban) [31, Nenko A.E., Nedoseka E.V.].

Thus, a search query for the keyword "Murmansk" on the social network VKontakte provides 22.495 communities containing this word in the name. The "Murmansk" group, formed in 2008, has 384.2 thousand subscribers, which makes this community one of the most popular among other communities in the presented social network (see Table 4).

Table 4

Rating of communities dedicated to the city of Murmansk on the social network VKontakte

Name of community	Type of community	Subscribers, thousand people[7]
Murmansk	City's community	384.2
Podslushano Murmansk | PVM №1 [Overheard in Murmansk]	City's community	121.6
Murmansk	Internet media	102.6
Murmansk — stolitsa Arktiki [Murmansk — the capital of the Arctic]	Internet media	93.2
Podslushano Murmansk	City's community	83.1

[7] as of May 11, 2023.

[Overheard in Murmansk]		
Murmansk	City's community	50.5

Users with active accounts (not blocked or deleted) — 82.7% of the total number of subscribers. Users with available age information are 37% of the total number of users and 44.8% of active ones. The most numerous categories of users are 31–40 years old (31.9%), 21–30 years old (21.8%) and 41–50 years old (17.2%). Almost all community users are identified by gender (over 99%), of which 47% are men, 53% are women.

The collection of discussion data in the online community was automated using the Python 3.8.10 programming language. The data collected included text notes — posts and comments — on the community "wall". As a result of parsing, records for 2021–2022 were uploaded to the database: the total number of posts is 23.817 units, the total number of comments is 926.583 units.

Next, the posts were sorted in descending order of the number of comments, and the minimum threshold for their "popularity" was determined at 100 comments. As a result, 268 posts were selected to form a purposive sample for more in-depth analysis using an open coding technique with the names of discussion topics. This made it possible to identify the main subdiscourses concerning the main problems of the city, which act as subjectively perceived reasons for the outflow of the population.

In the course of the work, posts were identified that were thematically devoted to collecting the opinions of Murmansk residents about the reasons for the move, the directions of the move, and encouraging subscribers to speak out on this issue (19 posts).

Murmansk residents, why do you think more and more people are leaving our city?	06.04.2021	1 170	https://vk.com/wall-5608669_7406441
The Murmansk Oblast may become a rotational region in the near future	24.08.2022	721	https://vk.com/wall-5608669_8611329
Over five years, the population of Murmansk will decrease by almost 18 thousand people — by 2025 there will be a noticeable population decline	25.10.2022	566	https://vk.com/wall-5608669_8702801
Pensioners are moving out of Murmansk en masse	17.11.2021	545	https://vk.com/wall-5608669_7946414
Murmansk is a city of unfulfilled expectations	19.10.2021	545	https://vk.com/wall-5608669_7851446
Do you agree with the opinion from TikTok that Murmansk is a dying city?	26.09.2021	407	https://vk.com/wall-5608669_7788519
Why do many people leave Murmansk?	06.11.2021	402	https://vk.com/wall-5608669_7907050
"Leave no more stay": everyone puts a comma where they think it is necessary!	07.01.2022	361	https://vk.com/wall-5608669_8085909
Murmansk population has returned to the level of 1967	18.07.2022	334	https://vk.com/wall-5608669_8558853
"Leave no more stay": everyone puts a comma where they think it is necessary!	04.12.2021	333	https://vk.com/wall-5608669_7996893
Most often, people leave a small town to dream of returning there. And others stay to dream of leaving it.	28.11.2022	289	https://vk.com/wall-5608669_8140792
Where do Murmansk residents most often move to?	15.04.2022	286	https://vk.com/wall-5608669_8355188

Karelia — to live, Murmansk — to leave?	20.08.2022	223	https://vk.com/wall-5608669_8605185
Famous blogger Ilya Varlamov compiled a rating of endangered cities in Russia. Murmansk was also included in it.	24.04.2021	212	https://vk.com/wall-5608669_7460818
The Kola region continues to empty out — the population of the Arctic has decreased by 1.8 thousand people since the beginning of the year.	11.05.2022	192	https://vk.com/wall-5608669_8416896
"We are not Moscow and St. Petersburg. And that's normal": no housing is being built in Murmansk	25.10.2021	159	https://vk.com/wall-5608669_7868689
In Murmansk, the mortality rate exceeded the birth rate by more than two times	18.02.2022	159	https://vk.com/wall-5608669_8196067
Murmansk — a "melting" city?	21.02.2022	149	https://vk.com/wall-5608669_8209469
Murmansk residents, do you agree that Murmansk is a dying city?	05.10.2021	125	https://vk.com/wall-5608669_7814518

A total of 7.178 comments were downloaded from the selected posts, which were first sorted and selected by the number of likes (at least 50 likes) as indicators of support from community members (4.454 units in total). Further, uninformative and irrelevant to the purposes of the study judgments (including prepositions, interjections, punctuation marks, various symbols, etc.) were excluded from this array of comments. The final array of comments amounted to 2.621 units and was subjected to axial coding in accordance with the categories previously identified during open coding of posts.

In working with posts and comments, we relied on coding methods (open and axial) proposed by representatives of "grounded theory" using the general research scheme of N. Pidgeon and K. Henwood [32]. Thus, the analysis of posts using the open coding technique made it possible to categorically determine the list of topics being debated, and the analysis of comments through axial coding was carried out on the basis of the existing system of categories in the direction of distributing comments into categories. To illustrate dominant opinions, we selected the most likesupported comments from subscribers.

As a result of processing the comments, the reasons for the outflow of the population, which were most actively discussed by the community of citizens, were identified.

The most intense subdiscourse is about the attractiveness of living in a city with harsh climatic conditions (category "Climatic conditions"). Climate is an ambivalent characteristic in the discourse of city residents. Thus, the beauty and uniqueness of northern nature is noted, which is expressed in private posts of photographs of the city in different seasons, accompanied by positive comments and declarations of love. At the same time, when analyzing the reasons for the decline, climate, in conjunction with the socio-economic living conditions in the region, acts as a concomitant factor in the outflow. Life in harsh climatic conditions, according to community members, should be encouraged and supported by the state. Comments that refer to the Soviet period of the city's existence, when polar allowances stimulated motivation either to move to the north or to keep the population in northern cities, have significant support with likes.

"If during the Soviet Union they came here for polar allowances, then what's the point of rotting here now!? Salary is the same as in the middle zone, all prices and housing and communal services are 2 times higher, plus 9 months of winter and almost complete absence of summer! What for the sake of putting up with all this?!" (434 likes)

"They used to go to the north to earn money, but now the "salaries" are less than those of Muscovites... and then what is there to do here now?" (99 likes)

The next subdiscursive block, "Quality of Life", included interrelated topics that were most discussed by the community: "low salaries", "high tariffs for housing and communal services", "high prices for housing, food, recreation", "availability of social infrastructure".

"It has become harder and harder to live here! I love my region, but it has become so hard! We are being squeezed out! Expensive utilities, ridiculous salaries! I really want to leave! It hurts for my small Motherland!" (214 likes)

"...renting housing is unreasonably expensive, 15 thousand a month, food prices for some goods are more expensive than in Moscow, fish is expensive, meat is also expensive, fruits and vegetables are very expensive, and there is little normal work, and if there is, everything is occupied long ago, living in Murmansk is too expensive..." (99 likes)

One of the unfavorable trends for the northern regions in general is the equalization of salaries with regions located outside the Arctic Circle. Once the main reason for migration to the north — polar allowances — is gradually losing its advantage.

"Everything is expensive in Murmansk, except salaries" (469 likes)

"A disgrace, not a salary for the north!" (208 likes)

It should be noted that the state of social infrastructure, in particular the opportunity to receive quality medical care and education, is accompanied by comments regarding the quality of life, as key indicators of the deterioration of living conditions in the city. The state of the medical care sector is one of the most pressing topics in the community. The shortage of specialized doctors, the inability to receive medical care in a timely and high-quality manner, and the level of medical care are the most pressing issues. It should be noted that the comments were written during the Covid-19 pandemic, which in general turned out to be a difficult period and a serious burden on the Russian healthcare system.

"So well, what to do in Murmansk? Huge communal prices, no medicine, no work, huge prices, hellish conditions for living, unless for drinking and in Murmashi and that's all, I also left in 2015 and do not regret at all" (175 likes)

"No normal work, huge prices for communal services, no medicine, lots of homeless people, dogs, garbage, crazy food prices, what's the point of living in a city like this?" (50 likes)

The cost of housing in the city is one of the most discussed and sensitive topics. The vast majority of statements can be described as "indignation" and "non-understanding" of the current situation. Housing prices are perceived by residents as unreasonably high; Combined with intensive population decline, natural and climatic conditions and living standards, residents do not see

the point in buying housing. The comments are dominated by the opinion that it is inappropriate to purchase housing in the absence of cost differences in other regions.

"Who to build for? The population is declining, those who can buy property in a new building are buying it in other cities" (252 likes)

"...Where do apartment prices come from in Murmansk? Where from?..." (154 likes).

The intensity of the discussion is distinguished by the thematic block related to the cost of utilities. Payments for housing and communal services are perceived as overpriced and very expensive.

"So what to do in Murmansk? The communal services are huge..." (172 likes)

"...wages in the north are lower than in the middle zone, where at least the climate is normal and utilities are half the price. The question is, what's the point of staying here?... You can't get enough of the beauty of the north. It is better to come here as a guest, if you feel sad behind the Khibiny and snows...." (142 likes)

The next subdiscursive block, identified by the intensity of the discussions, is designated "City development prospects" and concerns the implementation of investment projects in the region and urban improvement. The launch of the largest regional investment projects, which involve the economic development of the region and its administrative center, for all its apparent attractiveness and scale, is controversial, which is reflected in the comments of residents. The construction of the seaport "Lavna" (the largest port concession) and "Arctic LNG 2" (extraction and production of liquefied natural gas) attracts a large number of migrants and shift workers who are not motivated to integrate into the local community. According to the subscribers of the "Murmansk" community, the personnel policies of companies implementing investment projects rely on shift workers from other regions/countries. When analyzing community posts, attention is drawn to the high activity of subscribers under posts related to migrants and shift workers. While the average number of comments for two years under one post is 52, the average number of comments under posts concerning the attitude towards migrants and shift workers employed in investment projects is 450. The dominant opinion is that the attraction of outside labor puts a strain on the labor and real estate market in the city, which has caused an increase in housing prices in general.

"Negative! (note: we are talking about attitude towards migrants) Give jobs to your fellow countrymen" (967 likes)

"It didn't matter before, when there were few of them. Now it has become really irritating and annoying... They have recruited them just to save money and not to pay polar allowances to the locals." (438 likes)

"Not everyone lives in hostels or hotels; apartments are rented for them, because of this the price rises, and for ordinary people, renting an apartment within the acceptable range, up to about 20 thousand, is no longer possible." (147 likes)

At the same time, it should be noted that there are opinions about the unwillingness of the residents themselves to work in the proposed vacancies:

"Get a job in their position, but you will not be satisfied with either the level of salaries or the conditions in which they work." (101 likes)

The next topic within the subdiscourse "City development prospects", which is characterized by a richness of assessments and comments, is the loss of the city's industrial potential associated with its fishing specialization and port infrastructure. Crisis phenomena associated with economic restructuring in the early 1990s led the city's leading industries into decline. This circumstance is painfully perceived by the population and appears in comments as the reasons for the futility and dying of the city.

"Yes, it died when all the fleets were plundered, when industries collapsed and thousands of people were left without work. When the polar allowances became just a name. And now Murmansk is not a city, but a nest of bureaucrats and the taxi drivers and salesmen serving them. If those who remained had the opportunity to leave, it would have been a ghost town long ago." (297 likes)

"It feels like all this is being done on purpose, apparently the authorities don't need the big city of Murmansk, they will reduce the population to a minimum to serve the commercial port and small urban infrastructure and that's all. But the fact that this is a hero city, a hard-working city and once a fishing city does not bother anyone..." (189 likes)

Thus, the analysis of the subjective perception of the reasons for the population outflow by subscribers of the "Murmansk" community made it possible to discover three key subdiscourses, differing in the intensity of discussions and maximum support for comments from community members. Thus, in the subdiscourse "Climatic conditions", climate appears as a pushing factor, but a careful analysis reveals the secondary importance of this factor. The subdiscourse "Quality of life" included such most discussed topics as: "low wages", "high tariffs for housing and communal services", "high prices for housing, food, recreation", "availability of social infrastructure". The problematization of these topics by the group members is predominantly critical, meaningfully revealing the subjective understanding and assessment of the causes of the intensive decline in the urban population. It is important to note that assessments of the quality of life are more likely based on the perception of personal experience of everyday life, focusing on the so-called micro-level problems that subscribers personally encounter on a regular basis in everyday life.

In addition, the subdiscourse "City development prospects" has been identified, which concerns the strategic conditions of the city's existence, its production profile and industrial potential. The attitude and assessment of subscribers are reduced to a painful perception of the loss of the former importance of the fisheries and port infrastructure of the city. New investment projects, declared by municipal and regional authorities as projects for the development of the region as a whole, have meaningfully revealed topics that, from our point of view, reveal "pain points" that require careful attention on the part of agents influencing public opinion. The high level of

intolerance and the predominance of aggressive commentators towards groups of migrants and shift workers are associated with the increased level of pressure that these external groups have placed on the labor and real estate markets, in fact, acting as an additional pushing factor in the subjective perception of subscribers.

Conclusion

The specifics of shrinking cities are largely determined by the history of the development of cities in the Arctic zone of the Russian Federation in the 20th century. The emergence of new urban-type settlements in unfavorable climatic and environmental conditions through various forms of forced migration led to the formation of specific urban communities, which are characterized by a weakly rooted population with conditional motivation to live in extreme conditions. The changed priorities and capabilities of the Russian state after the collapse of state socialism led to a rapid migration outflow from many cities of the North and Far East. Increased “stress” migrations [19, Averkieva K., Efremova V.] occurred against the backdrop of serious demographic crises with a decrease in the birth rate and increasingly high mortality.

The negative migration and natural balance in the analysis of urban population losses in the Arctic zone of the Russian Federation is a logical consequence of the policy of economic restructuring of the industrial sector of the Arctic subjects. At the same time, the nature of shrinking cities in settlements with different population sizes requires taking into account different threshold criteria. As noted by researchers Averkiev K.V. and Efremova V.A., high relative population decline in small towns can have “soft” consequences for the urban economy, built-up environment and infrastructure. On the contrary, in large cities, relative changes in numbers are less pronounced, but high absolute values of population decline lead to pronounced negative effects. Taking into account the specifics of large cities (multi-apartment housing stock, centralized utilities and infrastructure), even a small relative decrease in population should be carefully studied and taken into account when developing policy and planning [19, Averkieva K., Efremova V.].

At the same time, the subjective perception of residents contains significant information regarding the social well-being of people living their daily lives in conditions of intense decline. Analysis of the public discourse of participants in the online community made it possible to identify the so-called “pain points”, which are also the most debated in the private sphere. An assessment of the quantitative indicators of discourse — the number of comments (for posts) and likes (for comments) — indicates the formation and stability in the minds of broad sections of the population of the main agenda of urban development problems that require attention from representatives of municipal and regional authorities.

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Water Transport in Arctic Tourism Logistics

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Abstract. The success of Arctic tourism development is associated with solving the problem of delivering tourists to the places of their interest. "The Concept for the Development of Cruise Tourism", approved by the government of the Russian Federation in 2022, suggests that overcoming the transport problem in the Arctic is possible thanks to water transport. It can be used in the logistics of Arctic tourism as a way of transporting tourists on routes and for organizing sea and river cruises. We have examined the current use of water transport in the organization of tourist routes in the Russian sector of the Arctic based on information from river and sea cruise operators. In addition, we have identified regions where water transport is used to organise passenger transport. In the European part of the Russian Arctic, water transport is most actively used for river cruises. Arctic river cruises provide tourists with the opportunity to travel in areas where there is no special infrastructure. In this case, river routes usually start southwards in the most populated regions. In the Asian part of the Russian Arctic the number of cruises is smaller, they are carried out only on three rivers — the Ob, the Yenisei and the Lena. But there are also regular passages that can be used by tourists travelling to the Arctic. Using content analysis of tourists' reviews of Arctic river cruises we have identified the main drawbacks of their organization. SWOT analysis of the use of water transport in the logistics of Arctic tourism showed what hinders its development. The main problems of water transport use in the Arctic include the ageing of vessels, passenger safety, short navigation period and shallowing of waterways. The most promising ways for the use of water transport in Arctic tourism are inland waterways in the European part of the Russian Arctic, the White Sea and the Barents Sea.
Keywords: *tourists, Arctic tourism, logistics, water transport, navigation, cruise*

Introduction

One of the priority tasks of tourism development in hard-to-reach regions of the Arctic zone of the Russian Federation is the delivery of tourists from the places of formation of tourist flows to the objects of tourist interest. Logistics in the Arctic is still a limiting factor in the development of the region. For the purposes of tourism development, the government of the Russian Federation approved a strategy for the period until 2035 on September 20, 2019. In order to implement the provisions of the strategy, on January 28, 2022, the government approved the "Concept for the development of cruise tourism", in which certain attention is paid to Arctic tourism. The concept envisages the development of cruise tourism in Russia, including in the Arctic zone, as one of the ways to overcome transport inaccessibility and poor infrastructure development of regions of interest to tourists. Development of such tourism is particularly promising in the regions with large rivers flowing into the sea. The Arctic zone of the Russian Federation is just such a terri-

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tory; it is crossed by large rivers flowing into the Arctic Ocean from south to north. The main objectives of the concept include the popularization of cruise tourism for Russians and the integration of its development projects into federal and regional programs. A key factor in the development of cruise tourism is the use of water transport [1]. For many Arctic territories, it is the only mode of transport that can be used to deliver large tourist groups to hard-to-reach areas with significant recreational potential. Moreover, various regions, both located in the Arctic zone and to the south of it, can be connected into one route by water transport. It should be taken into account that the main places of tourist flows formation are outside the Arctic. Cruise routes crossing several natural zones along the way to the Arctic territories are more diverse and informative for tourists. In our opinion, the isolation of Arctic tourism artificially narrows the target audience and reduces the potential number of tourists. Use of water transport for Arctic routes expands the territorial coverage, increases their attractiveness and makes it possible to integrate several regional tourist clusters into one tour. The purpose of our research is to determine the prospects for using water transport to improve the logistics of Arctic tourism.

Materials and methods

The works of domestic and foreign scientists are devoted to the problems of the development of Arctic tourism. Logistics issues are also mentioned there, although there have been no large-scale studies on their solution in recent years. The work of I.A. Potapov considers the most profitable logistics for delivering tourists to the Solovetskiy Islands, which are one of the goals of travellers in the Russian Arctic [1]. The logistics foundations of Arctic tourism are analyzed in the work of A.Yu. Tsvetkov [2]. The main topics of modern research on Arctic tourism are recreational resources, cruise organization, concepts and models for the development of Arctic tourism. The most frequently explored Arctic destinations are polar cruises with a visit to Franz Josef Land in the Russian Arctic national park, which is considered to be the current growth point of Arctic tourism [3, Kruzhalin V.I., Shabalina N.V., Nikanorova A.D. et al.]. A.V. Kunnikov notes that 4 directions are being formed related to the movement of tourists in the western sector of the Arctic. Most routes start in Murmansk and head to the North Pole or Novaya Zemlya with a stop at Franz Josef Land (Arkhangelsk is indicated as an alternative starting point for the route). There are routes from Pevek to Murmansk (along the Northern Sea Route) and from Spitsbergen to Franz Josef Land [4, Kunnikov A.V.]. These are mainly expedition tours for which icebreakers or ice-class vessels are used. However, as studies by A. Pashkevich and M. Lamers show, the potential of cruise tourism in the region is difficult to realize; some cruise practices lack consistency in terms of matching expectations and experience. Local authorities are financially limited, so the coastal infrastructure, local transport and accessibility of display objects are insufficiently developed [5].

[1] Kontseptsiya razvitiya kruiznogo turizma v Rossiyskoy Federatsii na period do 2024 goda [Concept for the development of cruise tourism in the Russian Federation for the period until 2024]. Moscow, 2022, pp. 1–2. URL: https://www.economy.gov.ru/material/directions/turizm/koncepciya_razvitiya_kruiznogo_turizma.html (accessed 20 October 2023).

It should be noted that sea transport is the main one in the transport system of the Russian Arctic, accounting for 50% of the volume of cargo traffic. Cruise ship tourism is currently the main part of Arctic shipping [6, Pashkevich A., Dawson J., Stewart E.J.]. The Northern Sea Route unites the mouths of navigable rivers flowing into the Arctic Ocean, making them a single transport system [7, Mitryukova K.A.]. Nevertheless, the creation of a unified logistics system requires modernization and integration of all port and mainland infrastructure facilities in the Arctic zone. The short navigation period (from 2 to 4 months) hinders the development of maritime transport in the Arctic. However, when icebreakers are used to guide ships, the navigation period increases. Due to this, in the western sector of the Russian Arctic, navigation along the route Murmansk – Dudinka is year-round [8, Gruzinov V.M., Zvorykina Yu.V., Ivanov G.V. et al.]. Navigation in the waters of the Northern Sea Route east of the meridian of Cape Zhelaniya requires permission from the Federal Agency for Maritime and River Transport for any vessel [3, Kruzhalin V.I., Shabalina N.V., Nikanorova A.D. et al.]. The main seaports of the Russian Arctic include: Arkhangelsk, Kandalaksha, Vitino, Onega, Mezen, Murmansk, Naryan-Mar, Varandey, Sabetta, Dikson, Dudinka, Khatanga, Tiksi, Pevek, Egvekinot, Berengovskiy, Provideniya, Anadyr. Of these, only the port of Dudinka does not require reconstruction, re-equipment or dredging [8].

Inland water transport is of great importance for the Arctic regions of Russia, where there are no other roads. The deep-water main routes, which are the majority of Russian rivers flowing through the Arctic regions, primarily include the Ob, Yenisei, and Lena rivers. Among the rivers of the European sector of the Russian Arctic, the Northern Dvina and the Pechora are conditionally included, with adjustments for depth. In the Asian sector of the Arctic, such rivers are: Pur, Khatanga, Kolyma, Yana, Indigirka and others. River transport is characterized by high carrying capacity and relatively low cost. The connection between inland water transport and sea transport is especially close in the European part of Russia. There is a branched single deep-water system formed by main rivers and canals (Volga, Kama, Don, White Sea-Baltic canal, Moscow canal, Volga-Don canal and others), connecting the White, Baltic, Caspian, Azov and Black seas. This is not typical for the Asian part of Russia, where main rivers, which have a large navigable length, flow in a meridian direction from south to north and are connected only by roads stretching in a latitudinal direction from west to east in the south of the region. This feature is reflected in the greater development of river cruise tourism in the European part of the Russian Arctic compared to the Asian part.

The use of inland water transport is very important in the Asian part of the Russian Arctic, where rivers are sometimes the only way to get to remote settlements with the lowest material costs. Therefore, the potential of the river fleet is used there for transporting goods and passengers more often than for organizing cruises. The length of inland waterways in the Russian Arctic is 52.000 km, and for shallow draft vessels — 70.000 km [9, Nokelainen T.S.]. There are 8 public river ports in the Russian Arctic: Arkhangelsk (Northern Dvina River), Labytnangi, Salekhard (Ob River), Green Cape (Kolyma River), Igarka (Yenisei River), Nadym (Nadym River), Nizhneyansk (Yana Riv-

er), Urengoy (Pur River). Arkhangelsk, Igarka and Salekhard specialize in serving passengers, and entry of foreign ships is allowed only in Arkhangelsk, Salekhard and Labytnangi [9, Nokelainen T.S.].

The use of the transport potential of rivers is limited by the duration of navigation, which is reduced when moving from west to east and ranges from six months at the mouth of the Northern Dvina to 2–2.5 months in the lower reaches of the Indigirka, Yana or Anabar, and from 7 to 20 days on some small tributaries of the Yenisei [8; 9, Nokelainen T.S.]. In addition to freezing, navigation is limited by the water level and the depth of the rivers. Dredging works were not carried out on many rivers after 1991; as a result, the length of waterways with guaranteed depths decreased by 40%. Currently, the average depths in the Arctic range from 0.7 m in small rivers to 10–12 m in the lower reaches of the Yenisei [9].

One of the priority segments of the tourist market in the Arctic from the perspective of visitors' expectations is mass tourism, implying sightseeing under the condition of comfortable travel and accommodation [10, Noeva E.E.]. The latter is currently possible in the Arctic conditions only with the use of cruise or passenger ships, which will be both a mode of transport and a place of accommodation for tourists.

To achieve this goal, we have studied the current use of water transport in organizing river and sea cruises, the routes of which fully or partially cross the Russian sector of the Arctic. For this purpose, we used information about the proposals of Russian cruise operators for the 2023 season. We analyzed the proposed routes, their frequency of navigation, and studied the passenger capabilities of the vessels. This allowed us to characterize the state of cruise tourism and determine the potential of Russian water transport for its use in organizing the delivery of tourists to the Arctic regions. We identified the main waterways that can be used for the logistics of Arctic tourism, assessed the connectivity of the main areas of formation of tourist flows that are sent to places of tourist interest in the Russian sector of the Arctic. We also studied the schedules of regular passenger flights of river and sea transport in various regions of the Russian sector of the Arctic from the perspective of its potential use for delivering tourists. Using content analysis of tourist reviews about Arctic cruises, we characterized their positive and negative aspects and identified problems that hinder the use of water transport in Arctic tourism. To identify the advantages and problems of using water transport in the logistics of Arctic tourism, we conducted a SWOT analysis.

Results and discussions

In 2019, there were 23 cruises along the Arctic Ocean to the North Pole during the season, including 17 cruises with a visit to the Russian Arctic national park [3, Kruzhalin V.I., Shabalina N.V., Nikanorova A. D. et al.]. In 2022, 3 voyages were made by the icebreaker "50 Let Pobedy". In 2023, there was only 1 cruise to the Pole on this ship [2]. The number of foreign tourists has dropped to almost zero, experts report a record drop in demand for cruises to the Russian Arctic.

[2] Suda i obratno: dlya kruizov v Arktike smyagchat pogranichnye pravila [Ships and back: border rules to be eased for cruises in the Arctic]. URL: https://iz.ru/1575978/kseniia-nabatkina-iana-shturma/suda-i-obratno-dlia-kruizov-v-arktike-smiagchat-pogranichnye-pravila (accessed 21 October 2023).

The number of cruise participants has decreased by more than 5 times. The reasons for this are the current international situation and the lack of a sufficient number of Russian solvent tourists willing to pay more than 1 million rubles for a polar cruise. Experts expect that Arctic cruise destinations will become more in demand after China's recovery from the pandemic, as Chinese tourists previously made up the majority of cruise participants [3].

River cruises, including those entering the Russian Arctic, have not lost their popularity. Their cost is also high, but they are more affordable for tourists with average incomes. The cheapest river cruises entering the Arctic are in the European part of Russia, their cost starts from 51.000 rubles for 12 days [4]. The most expensive river cruises are on the Yenisei (from 267.000 for 6 days on a cruise ship, from 103.000 on a regular passenger ship) [5]. On the Ob and Lena, the cost of cruises is average compared to the prices mentioned above (from 148.990 rubles for 11 days on the Ob; 127.875 rubles for 14 days on the Lena) [6]. Their demand is associated with the thoughtfulness of routes passing through several natural zones, regions and numerous places of tourist interest. They usually start in large cities in the central regions of the European part of the country or southern Siberia, in the places where the majority of potential tourists live. Moreover, water cruises have their own thematic audience, and after the emergence of difficulties with foreign trips, some fans of foreign cruises switched to domestic ones. The results of studying cruise routes and the transport involved are presented in table 1.

Table 1

Water transport in cruises entering the Russian Arctic during the 2023 season

Directions	Period	Main attractors in the Arctic part of cruise	Number of voyages/capacity
Waterways: Moscow River, Moscow Canal, Volga, Kama, Onega Canal, Svir River, Ladoga Lake, Neva, Onega Lake, White Sea-Baltic Canal, White Sea, Northern Dvina			
Moscow — Cherepovets — Solovki — Petrozavodsk — St. Petersburg — Arkhangelsk — Moscow (or Yaroslavl)	mid May – early October	Solovki, Arkhangelsk, Murmansk	10/186-196
Arkhangelsk — Solovki — Belomorsk — Yaroslavl — Moscow			1/196
St. Petersburg — Solovki — Arkhangelsk — St. Petersburg (or Moscow)			10/186-196
Yaroslavl — Solovki — Moscow			1/196
Perm — Sarapul — Kazan — Ulyanovsk — Nizhniy Novgorod — Yaroslavl — Petrozavodsk — Solovki or Murmansk (train) — Teriberka — Perm			1/314
Moscow — Povenets — Medvezhyegorsk — Murmansk (train) — Teriberka — Kem — Solovki — Arkhangelsk — Yaroslavl			1/196

[3] Eksperty soobshchili o rekordnom padenii sprosa na kruizy v Arktike [Experts report a record drop in demand for cruises in the Arctic]. URL: https://murmansk.rbc.ru/murmansk/02/03/2023/640043bd9a794735ff80d67c (accessed 21 October 2023).
[4] River cruises on the motor ship Rus Velikaya. URL: https://unicruises.com/ship/rus-velikaya (accessed 20.10.2023).
[5] Cruises on Russian rivers. URL: https://vodohod.com/cruises/ (accessed 20 October 2023).
[6] URL: https://www.infoflot.com/ (accessed 20 October 2023).

Arkhangelsk – Severodvinsk, Malye Korely (bus) – Brin-Navolok – Kholmogory – Lomonosovo – Arkhangelsk	early June	Arkhangelsk, Severodvinsk, Malye Korely, Lomonosovo	1/60
Ob, Irtysh, Ob Bay of the Kara Sea			
Novosibirsk — Tomsk — Nizhnevartovsk — Surgut — Salekhard — Khanty-Mansiysk — Tobolsk	mid June — late August	nature	1/130
Tobolsk — Khanty-Mansiysk — Salekhard — Surgut			3/130
Surgut — Salekhard — Khanty-Mansiysk — Tobolsk			2/130
Surgut — Salekhard — Novyy Port — Surgut	August		1/130
Yenisei, Yenisei Bay of the Kara Sea			
Krasnoyarsk — Igarka — Dudinka	summer	nature	6/94
Dudinka – Igarka – Krasnoyarsk	June – September	nature	6/94
Norilsk — (plane) Dikson — Dudinka — (schedule ship) — Yeniseisk			1/315 (329)
Krasnoyarsk (bus) — Yeniseisk (regular ship) — Dudinka — Norilsk (train, bus)			2/315 (329)
Norilsk (bus) — Dudinka (regular ship) — Yeniseisk — (bus) Krasnoyarsk			2/315 (329
Norilsk — Dudinka — Yenisei delta (regular ship) — Dudinka — (helicopter) Putorana plateau — Norilsk (airplane) — Dikson	early July — early September		2/315 (329
Krasnoyarsk — Igarka — Dudinka — Putorana plateau (helicopter)			1/94
Lena, Laptev Sea			
Yakutsk — Zhigansk — Kyusyur — Tiksi — Yakutsk	July — August	nature, folklore	2/210
Arctic Ocean			
Murmansk — North Pole — Franz Josef Land — Murmansk	July	nature	1/128
Naryan-Mar — Novaya Zemlya — Naryan-Mar	July		order/18
Anadyr — Wrangel Island — Anadyr	August		2/46

Analysis of the data in Table 1 shows that the largest number of cruises (river cruises and cruises with access to the Arctic zone) in the season of 2023 was organized in the European part of Russia. Here is the longest cruise period (from mid-May to early October). The main departure points for cruises were Moscow and St. Petersburg. Cruises also started in Arkhangelsk, Yaroslavl, and Perm. Some of the routes pass south of the Arctic zone. The longest route started in Perm. It was organized by a cascade type and passed through large cities (Kazan, Ulyanovsk, Nizhniy Novgorod, Yaroslavl, etc.), in each of which start of a cruise was possible. Thus, due to the system of rivers and canals, water routes cover the territory where the majority of the Russian population and potential tourists live, which ensures the sale of trips. The average capacity of ships used for cruises is 232 seats (from 186 to 314). The shortest and rarely organized route was along the Northern Dvina. The reason for this is the shallowing of the river, as a result of which ship voyages are possible only when the water level is high at the beginning of summer. All cruises with Arctic

visiting in the European part of Russia include the Solovetskiy Islands in the route; therefore, they are the main object of tourist interest. Most routes are carried out on river–sea class vessels, so they freely enter the White Sea and reach Solovki and Arkhangelsk. River cruises from the central regions of Russia do not continue north of the latitude of the Solovetskiy Islands. The exception is combined routes, when, having arrived by boat in Karelia (Medvezhyegorsk), tourists change trains and go to Murmansk, where the program continues on the coast of the Barents Sea. Theoretically, the river–sea system allows ships, going along the coast of the Kola Peninsula from the White Sea, to enter the Barents Sea and reach Murmansk. Thus, in the European part of the Russian Arctic, the most attractive basin for tourists is the White Sea, which should be taken into account when organizing cruises.

The cruise fleet operating on Arctic routes in navigation 2023 is represented by modernized ships built from 1956 to 1978. This should be taken into account when addressing the issue of passenger safety. In the basin of the Ob and Irtysh rivers and in the Ob Bay of the Kara Sea, 11 cruises were organized during the season lasting from mid-June to the end of August, including 7 ones with visits to the Arctic. The first and longest route started in Novosibirsk. But the main part of the routes begins downstream of the river in Tobolsk (Irtysh River) and Surgut. The starting points of cruises are located far from the main places of formation of tourist flows in the European part of Russia, therefore, tourists' expenses increase due to the cost of travel to them. The exception is the large city of Novosibirsk and the surrounding areas of southern Siberia, which are the most populated in this region. All routes call at Salekhard, which is on the Arctic Circle. One of the past cruises included access to the Gulf of Ob in the Kara Sea. The capacity of the Severnaya Skazka cruise ship, which served the line in the 2023 season, is 130 people; it was built in 1957 and modernized in 2019. The peculiarity of cruises in the Ob basin is their duration (all Arctic routes last from 11 days) and passing through sparsely populated areas. Part of the route passes south of the Arctic zone.

Cruises on the Yenisei are from the beginning of June to the end of September. Of the 19 cruises organized in 2023, 12 enter the Arctic zone. There are combined routes visiting the Taimyr Peninsula, the Putorana and Dikson plateaus. The peculiarity of organizing cruises on the Yenisei is that they go in one direction: either down the river from Krasnoyarsk or Yeniseisk to Dudinka, or up the river from Dudinka. The route is served by the Maxim Gorkiy motor vessel, built in 1974, accommodating 94 people (certified as a 5-star hotel). In 2023, it left the route earlier than planned due to a breakdown. Some of the routes, which are combined with a visit to Norilsk, the Yenisei delta, Dikson, use two regular ships, which carry passengers from Krasnoyarsk to Dudinka throughout the summer and part of the autumn. The capacity of passenger ships is larger than that of cruise ships (315–329 people), they were built in 1953 and 1954. At the same time, the cost of cruises using passenger ships is lower than on a cruise ship, since the state subsidizes such voyages.

During the 2023 season, 2 cruises took place along the Lena River with entry into the Arctic and into the Laptev Sea. Cruises start in Yakutsk and end in Tiksi under favorable weather conditions. Cruises are served by the motor ships “Demyan Bednyy” and “Mikhail Svetlov” of the Lena River Shipping Company with a capacity of 210 people, built in 1985 and 1986. The cruise route is reverse, but it is possible to buy a ticket only down the river or only up to Yakutsk. Cruises on the Lena River are not provided with local tourists, but due to the uniqueness of the route they attract tourists from other regions of Russia and from abroad.

The Arctic Ocean cruise season includes July and August, when ice conditions are better. In 2023, it was not widespread; one voyage on the icebreaker “50 Let Pobedy” (built in 2007) from Murmansk brought tourists to the North Pole and Franz Josef Land. Two cruises were organized in the eastern part of the Russian Arctic — in the Chukchi Sea from Anadyr to Wrangel Island on the expedition ship “Professor Khromov” with a capacity of 46 people, built in 1982 [7]. An exclusive route on an ice-class yacht with a capacity of 18 people was offered from Naryan-Mar to Novaya Zemlya. These cruises are distinguished by the complexity of their organization and high cost, so they are not widespread, and with the loss of the foreign tourist market, ensuring the filling of vessels is problematic.

We have studied the reviews of tourists who took part in cruises calling at the Arctic, which were left on special review sites and websites of cruise operators. Since Arctic cruises are not widespread, there are few reviews on them. Thus, on the website of the cruise operator, only 2 reviews out of 442 left for the 2023 season refer to Arctic cruises [8]. Most reviews are positive, which is explained by the fact that there are few casual passengers who are not prepared for the peculiarities of the Arctic on such cruises. Tourists praise interesting programs, comfort, service, and food.

The negative aspects of cruises are bad weather (fogs that prevent disembarking), difficulties in disembarking, since in many places there are no piers (this especially applies to the rivers of Siberia and the coast of the Arctic Ocean), unsafety, lack of life-saving equipment, boats, lack of communication along a long route, mosquitoes, smoke from forest fires (cruise on the Lena), desolation in Arctic settlements, cost of travel [9].

A population survey conducted in Yakutia in 2019 showed that only 11% of potential tourists are ready to buy a cruise on the Lena without additional conditions, 61% would probably buy, but not at that price, 18% would not buy in any case, and 10% are not interested [10].

When organizing cruises, not only special cruise ships are used, but also voyage passenger motorboats, sailing on a considerable length of certain waterways. We have analyzed the possibili-

[7] Cruise operator “Vasta Expeditions”. URL: https://vasta-expeditions.ru/ (accessed 21 October 2023).
[8] Reviews on river cruises in Russia. URL: https://kruiz.online/reviews (accessed 21 October 2023).
[9] Tripadvisor. URL: www.tripadvisor.ru (accessed 21 October 2023).
[10] Turistka podelilas' vpechatleniyami ot kruiza po Lene [A tourist shared her impressions of a cruise on the Lena]. URL: https://sakhaday.ru/news/turistka-podelilas-vpechatleniyami-ot-kruiza-po-lene (accessed 21 October 2023).

ties of using the passenger fleet in the Arctic zone of Russia to organize routes for group and individual tourists (Table 2).

Table 2

Regular passenger services by water transport with entry into the Russian Arctic during navigation in 2023

Area	Direction	Voyage frequency	Capacity
Barents and White Seas	Murmansk – Ostrovnoy (Barents Sea) – Chavanga (White Sea)	December—September — 3 voyages per month; October—November — 2 to Ostrovnoy. In June–August — 1 voyage per month to Chavanga	200
White Sea	Arkhangelsk — Solovki Arkhangelsk — Koida Kem (Rabocheostrovsk) — Solovki	3 — June, August; 2 — July. 3 — June; 2 — July, August. twice a day	36 36 80–160
Kara Sea	Salekhard — Novyy Port Salekhard — Nyda Salekhard — Yar-Sale	5 — July, September; 4 — August; 1 — October. 2 — July, August. 19 — June; 21 — July; 28 — August; 17 — September; 5 — October	150
Yenisei River	Krasnoyarsk — Dudinka	June — early October — 1 voyage per week	315–329
Pechora River	Naryan-Mar — Kotkino Naryan-Mar — Velikovisochnoe	June — early October — twice a month; June — early October — 3 times a week	11–30
Yenisei, Yenisei Bay	Dudinka — Nosok Dudinka — Vorontsovo	8 — June; 10 — July; 13 — August, September; 4 — October. 2 — July	30–50
Khatanga River, Khatanga Bay, Kheta River, Popigai River	Khatanga — Syndassko Khatanga — Katyryk Khatanga — Popigai	3 each — in July, August, September. 1 each — in June, September; 2 each — in July, August. 3 each — in July, August, September	30
Lena	Yakutsk — Kyusyur — Tiksi	June — 1, July, September — 2, August — 3	199

Table 2 shows that water transport passenger voyages in the navigation season of 2023 were not organized throughout the entire Arctic zone of Russia. It is necessary to organize long voyages connecting the places of tourist flows formation and main attractions to deliver tourists to the Arctic regions and to organize the individual cruises. Compared to previous navigation periods, their number has decreased. Passenger voyages along the Irtysh and Ob, which were carried

out from Omsk to Salekhard, have been cancelled. Voyages from Salekhard to Antipayuta along the Ob and Taz Bays of the Kara Sea have been replaced by air flights.

Currently, the regular passenger voyages along the Lena and Yenisei, which are operated from June to September or October, are the longest. Two ships ("Valery Chkalov" and "Alexander Matrosov") sail towards each other once a week between Krasnoyarsk and Dudinka along the Yenisei. Cruise operators are already using them to deliver tourists. The number of passenger voyages along the Lena River is smaller; there is only one motor ship "Mechanik Kulibin" built in 1955 on the line. Individual tourists travel on it. Regular passenger voyages from Murmansk on the ship "Klavdiya Elanskaya" built in 1977 may be of interest for the organizers of tourist delivery. During the year, it carries out short voyages across the Barents Sea to Ostrovnoe, and in the summer the route is extended once a month to the village of Chavanga, located on the shore of the White Sea, in the south of the Kola Peninsula. The ship makes stops in other populated areas along the route, but does not get ashore due to the lack of berths.

The passenger line from Kem (Karelia) is actively used to deliver tourists to Solovki. This route is the cheapest and the most accessible to visit the islands. As an alternative route, regular voyages from Arkhangelsk, which are carried out in summer 2-3 times a month on the motor ship "Belomorye", can be considered. This is a longer voyage, and with a sufficient level of comfort on the ship, it could be interesting for tourists; however, the ship serving it cannot provide such conveniences. The motor ship "Belomorye" carries out similar trips along the coast of the Dvina Bay of the White Sea to the Koida pier. Disembarkation of passengers at intermediate stops is a problem, as the ship cannot come close to the shore in the absence of a berth. On the Solovetskiy Islands, the main pier receiving cruise ships was closed for repairs during the 2023 season. Short-term passenger voyages (up to a day) on small-capacity vessels are carried out at the mouths of the Ob (with entry into the Ob Bay of the Kara Sea) and Yenisei, on the Khatanga, Kheta and Popigai rivers. Passenger voyages on the Pechora are short-term, the longest ones last up to 7–8 hours. They are not suitable for organizing cruises, but they can be used to deliver tourists to certain places of interest.

Free movement on many of the listed routes is complicated by the fact that they pass through the border zone, which requires special permission for individual tourists when going ashore. For foreign ships in the Russian sector of the Arctic and the Far East, there is a list of ports where tourists are allowed to embark and disembark, and border regime requirements are not applied there. For Russian cruise ships, according to the Law "On the state border", until recently it was necessary to issue a collective pass to the border zone, to notify the authorities about the use of boats and launches, etc. But the government commission has softened the border control procedure for Russian cruise ships, limiting it to notification of the vessel's route, crew and pas-

sengers [11]. The national standard "Arctic tourism. Tourist and excursion services in the Arctic zone of the Russian Federation", adopted in 2022, defines the requirements for organizing infrastructure and ensuring the safety of tourists on such trips.

We have conducted a SWOT analysis of the prospects for using water transport in the logistics of Arctic tourism.

The *strength* of using water transport is the ability to connect the places of formation of tourist flows and places of tourist interest without building roads, to deliver tourists to hard-to-reach areas of the Arctic, deprived of other types of transport infrastructure. Due to the adaptability of cruise and passenger ships for multi-day voyages with accommodation of tourists in cabins, there is no need to create hotel infrastructure in places of tourist interest, thus saving money and preserving the vulnerable Arctic nature. The presence of a vast system of artificial and natural waterways in the European part of the Russian Arctic makes it possible to develop Arctic cruise programs starting in various cities located on them.

The *weaknesses* of using water transport in the logistics of Arctic tourism are the following: lack of piers, berths, outdated coastal infrastructure along the route, which makes it impossible for cruise ships and icebreakers to dock, shallowing of most rivers flowing in the Arctic zone due to the lack of dredging. In addition, water transport is limited by the duration of navigation, which lasts for 2–2.5 months on rivers of the Asian part of the Arctic, up to 6 months in the European part and from 2 to 4 months on the Northern Sea Route. Threats also include the high cost of Arctic cruises, which limits their large-scale use.

Opportunities for the use of water transport in the logistics of Arctic tourism include its multiplier effect after the construction and modernization of passenger and cruise fleets, berths, stimulating further development of infrastructure in the settlements through which its routes pass, improving the quality of life of local residents, which will help to attract new tourists. Opportunities are also related to the integration of Arctic port infrastructure facilities into the unified logistics system of Russia, which will facilitate the movement of tourists. Climate warming determines the possibility of increasing Arctic navigation.

Threats to the further development of water transport in the logistics of Arctic tourism are associated with the aging of the cruise fleet, insufficient number of ships suitable for navigation in Arctic conditions, postponement of the completion of planned motor ships and icebreakers for an indefinite period of time due to sanctions on the supply of components by foreign companies. This leads to problems in ensuring passenger safety.

Conclusion

Thus, water transport in tourism logistics is the basis of cruise tourism and a means of delivering tourists. In Arctic tourism, water transport is mainly used to organize cruises. In Russia,

[11] Suda i obratno: dlya kruizov v Arktike smyagchat pogranichnye pravila [Ships and back: border rules to be eased for cruises in the Arctic]. URL: https://iz.ru/1575978/kseniia-nabatkina-iana-shturma/suda-i-obratno-dlia-kruizov-v-arktike-smiagchat-pogranichnye-pravila (accessed 21 October 2023).

river cruises are the most widespread, their routes are diverse, and they are more accessible to potential tourists compared to Arctic sea cruises. Almost all river cruises, which we classify as Arctic cruises, only partially enter the Russian Arctic zone, and most of them pass through waterways located southwards. The most developed system of waterways for river cruises is in the European part of Russia, where most of them are organized, including those entering the Arctic zone. Thanks to the use of river-sea vessels, Arctic river cruises call at the Solovetskiy Islands and Arkhangelsk. The advantage of cruises in the European part of the country is their lower cost compared to routes organized in the Asian part. This is facilitated by competition between cruise operators, longer navigation period and a significant number of potential tourists, since the majority of population lives in the European part. The problem is created by the old cruise fleet, the majority of which was built before 1980. Additional opportunities for moving in the European sector of the Russian Arctic are provided by regular passenger routes from Murmansk along the Barents and White seas, from Arkhangelsk and Kem along the White Sea, including Solovetskiy Islands. Thus, the White Sea is promising for organizing independent cruises. In this regard, at the St. Petersburg Economic Forum 2023, an agreement was signed between the governors of the Murmansk and Arkhangelsk oblasts and representatives of cruise operators on the implementation of cruise routes in the White Sea, for which a cruise liner will be built, which should make its first voyage in 2025 [12].

Fewer river cruises are organized in the Asian part of the Arctic due to the relatively small population, less competition between cruise operators and the higher cost of trips. The largest number of cruises calling at the Arctic is organized along the Yenisei. At the same time, there is an active use of cruise passenger ships, which make regular voyages once a week from June to October from Krasnoyarsk to Dudinka. Passenger voyages are subsidized by the state, so the costs for tourists who use them to travel to the Arctic are lower than for cruises on special ships. There are only a few cruises on the Lena River per season. Amateur travellers use the regular motor ships. The Lena cruise starts in Yakutsk, which is significantly removed from the places of residence of potential tourists from the European part of Russia, so the cost of the trip increases due to the necessity of additional payment for travel to the starting point of the cruise. The number of cruises organized along the Ob is also small, although the starting points of the routes are closer to the areas of tourist flows formation. Regular passenger voyages in the region are preserved for short distances on small-capacity ships; theoretically, they can be used for individual tourists. Arctic and polar cruises in the Arctic Ocean during the 2023 season were carried out in its western and eastern parts. One expedition cruise was from Murmansk to the North Pole and Franz Josef Land, and two cruises — from Anadyr to Wrangel Island. The use of water transport in the Arctic Ocean is limited by the high cost of operating an icebreaker for polar cruises and the limited navigation

[12] V akvatorii Belogo morya nachnut rabotat' kruizy [Cruises will be operated in the White Sea]. URL: https://murmansk.mk.ru/social/2023/06/15/v-akvatorii-belogo-morya-nachnut-rabotat-kruizy.html (accessed 21 October 2023).

time on the Northern Sea Route. Besides, the demand for such cruises has decreased in recent years due to the absence of their main consumers — foreign tourists. Therefore, until the international situation is resolved and Russian polar cruises return to the foreign market, their development seems problematic. The use of water transport in the logistics of Arctic tourism is limited by the aging of the cruise and passenger fleet, which affects the safety of passengers. The lack of berthing infrastructure along the routes, the absence of dredging, leading to a reduction in guaranteed depths on waterways, reduces the efficiency of water transport use. The lack of government subsidies for the organization of passenger voyages leads to decline in their number. Increasing passenger traffic through tourists on such vessels could increase their profitability. The creation of new passenger water routes will have a beneficial effect on the quality of life of residents of coastal settlements and will facilitate the delivery of tourists to places of interest, which will contribute to the development of Arctic tourism.

In order to create a competitive cruise product using water transport, it is necessary to organize integrated routes passing through a number of territories with different recreational potential in order to attract different categories of tourists. The most promising area for the use of water transport in the logistics of Arctic tourism is the European sector of the Arctic, where there is a significant number of potential tourists, a fairly large fleet, and an extensive waterway system. This is a single deep-water system, the White Sea and the Barents Sea. On the rivers of the Asian part of the Arctic (Ob, Yenisei, Lena), the development of a passenger river fleet, also designed to transport tourists, is promising.

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Geological and Geographical Expedition of A.A. Keyserling and P.I. Krusenstern to the European North-East of Russia

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Abstract. The paper provides information about the expedition to the European North of Russia in 1843. The expedition travelled about 8000 miles (about 8427 km). The main route was connected with the waterway along the rivers Vychegda, Pechora, Izhma and their tributaries. Hiking routes were connected with the description of the Ural Mountains sites (Bolvano—Iz, Skala). On reindeer sledges, the expedition reached the coast of the Barents Sea and carried out geological and geographical work in the Timan tundra. The work was supervised by a paleontologist, corresponding member of the St. Petersburg Academy of Sciences, Count A.A. Keyserling. The scientist described and paleontologically characterized the rocks of the Lower Silurian, Devonian, Permian, Jurassic and Lower Cretaceous age. As a result of the expedition, the main minerals (coal, gypsum, oil, domanic, copper ore, salt, grindstone) were studied. The significant geological and geographical result was the discovery of the Timan Ridge and its mapping. P.I. Krusenstern conducted topographic surveys, astronomical and geographical observations. He compiled a geographical map on a scale of 1:3000000 with a rectangular geographic grid and detailed drawing of rivers, lakes and settlements. The published works of the scientists are kept in the funds of the A. A. Chernov Geological Museum, Institute of Geology.
Keywords: *history, expedition, Keyserling, Krusenstern, Timan, Pechora Krai*

Introduction

The year 2023 marks the 180th anniversary of the first geological and geographical work in the European North-East of Russia. In 1843, expeditionary research was carried out under the leadership of the famous naturalist, paleontologist, traveler, corresponding member of the St. Petersburg Academy of Sciences, Count A.A. Keyserling. The results obtained during the expedition played a major role in the study and development of the vast territory. In honor of these events, a memorial plaque was installed on the wall of one of the buildings in Syktyvkar (Fig. 1).

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Fig. 1. Memorial plaque to A.A. Keyserling and P.I. Krusenstern in Syktyvkar.

The historical and archival collection of the A.A. Chernov Geological Museum (Syktyvkar) contains the works by A.A. Keyserling and P.I. Krusenstern, published in 1846, and the work of R. Murchison, E. Verneuil and A.A. Keyserling “Geological description of European Russia and the Ural Ridge” with a collection of geological maps, outcrops and sections, compiled by A.A. Keyserling [1], [2]. These materials were brought to the museum thanks to academician N.P. Yushkin, who preserved a part of the old collection of the library of the Russian Mineralogical Society in St. Petersburg and transported it to the Institute of Geology of the Komi Science Center (Fig. 2).

Fig. 2. Fragment of the geological map to the work of R. Murchison, E. Verneuil and A.A. Keyserling “Geological description of European Russia and the Ural Ridge”, 1849 [3].

Preconditions for the expedition in the Pechora Krai

At the beginning of the 19th century, the European North-East of Russia was socio-economically part of the Vologda and Arkhangelsk provinces. During this period, generalized works on the economic and geographical description of the territories were published. In 1813, the work of K.S. Molchanov appeared, which mentioned copper ores on the Tsilma River and oil on the Ukhta River. A map of the Arkhangelsk province was provided, on which the main rivers are shown: Pechora, Tsilma, Usa, Izhma with the names of their tributaries [4].

In 1834, the book of the Vologda governor N.P. Brusilov “The experience of describing the Vologda province” was published, which is, in fact, a geographical description of the whole province, including Ust-Sysolskiy uyezd, which characterized the natural and human resources of the province. In fact, this was one of the first regional works [5]. It provides statistical data, describes the Seregovskiy salt plant and ironworks along the Sysola River. It mentions limestone mining near the mouth of the Vym River and in Ibskaya, Vizingskaya, Uzhginskaya volosts. The grinding stones of the Brusyanaya and Tochilnaya mountains on the Pechora River are described.

Difficult accessibility and climatic conditions hindered the development and scientific study of the region. Questions about communication routes across the Pechora River to the Urals and Siberia have been raised more than once. In 1785, a project was drawn up for the North-Ekaterininskiy Canal between the rivers North Kelma (a tributary of the Vychegda River) and Dzyuridzem, which flows into the Kama River. Construction of the canal continued until 1822.

In 1806, engineer V.N. Popov was sent by order of Alexander I to level the Urals between the Usa and Sob rivers in order to build a canal for the navigation of ships from the Ob to Pechora rivers. He made a survey of the Usa River and compiled two atlases of the eastern and western slopes of the Urals (this survey was later used by many explorers: A. Reguli, P. Krusenstern, A. Stukenberg, etc.). The works of V.N. Popov were the first specialized survey works on the construction of a route to Siberia through the upper reaches of the Usa River [6, p. 16].

In 1814, V.K. Vishnevskiy first carried out astronomical and geodetic observations in many cities and towns of the European North. From 1806 to 1815, he travelled throughout the European part of Russia and determined the astronomical coordinates (latitude, longitude) of populated areas (223 points), including Arkhangelsk, Mezen, Velikiy Ustyug, Solvychegodsk, Yarensk and Ust-Sysolsk [6, p. 16].

In 1821, a significant amount of cartographic work was carried out by an expedition led by I.N. Ivanov (N.M. Ragozin, P.K. Pakhtusov, etc.), who conducted a continuous survey of the northern coast of the Barents Sea for nine years. This inventory was made to determine the possibility of exporting ship larch timber from Pechora to Arkhangelsk, which had become scarce in the Northern Dvina basin. In 1821–1822, he made a description of the Pechora River banks (from Pustozersk to its mouth) and the seashore to the mouth of the Chernaya River [6, Silin, 2019, p. 17].

In the early 1840s, Russian Emperor Nicholas I issued an order to the Department of Mining and Salt Affairs to create a geological map of the European part of the country. For this work,

the French paleontologist E. Vernel, the British geologist R. Murchison, the zoologist J. Blasius and A.A. Keyserling were involved [2, p. 9]. The teams worked in different regions of Russia. In 1840–1841, A.A. Keyserling, appointed to serve in the mining department as an official of special assignments, started his acquaintance with the Pechora Krai as part of the expedition with J. Blasius. The results obtained were published in editions of the Imperial St. Petersburg Academy of Sciences and the Imperial Moscow Society of Natural Scientists (MSNS). In 1841, their joint article on the geological formations of European Russia "Notiz über Verbreitung der geognostischen Formationen im europäischen Russland" was published in the "Bulletin of the MSNS". For a whole year, the scientist processed the obtained stone material, carried out a comparative analysis with paleontological data in France and England, and upon returning to Russia, handed over the material, which is still stored in the Museum of the Mining Institute (St. Petersburg).

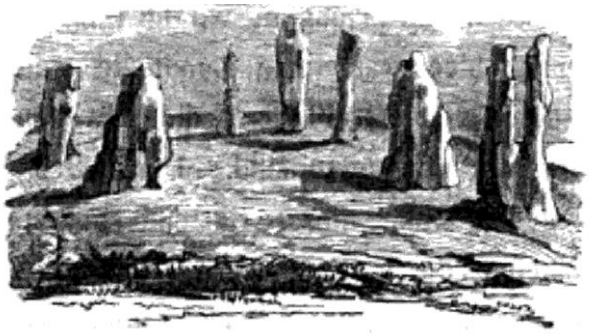
Thus, the development of the European North of Russia is integrally connected with the development of the richest reserves of mineral resources. The peculiarities of the geological structure of the territory predetermined the discovery of various types of minerals, but most of the area remained poorly studied. On geographical maps, the Pechora Territory objects sometimes did not correspond to the values of geographical coordinates determined by the grid, and, except for Ust-Sysolsk, many settlements did not have astronomical determination of latitude and longitude.

Results of the 1843 expedition

In 1843 A.A. Keyserling led an expedition to the Pechora region. The expedition was equipped by the Corps of mining engineers and was supported by the governors of Arkhangelsk and Vologda provinces [7]. A naval officer and geographer Pavel Ivanovich Krusenshtern (1809–1881) was invited to carry out topographical and astronomical measurements.

The expedition arrived in Ust-Sysolsk (now Syktyvkar) on June 7, 1843 and lasted three months. The expedition returned to St. Petersburg on November 13, having travelled about 7900 versts (≈8427 km), of which 2500 versts were by boat. One of the expedition guides and translator was a resident of Ust-Sysolsk, Philip Yakimovich Popov. From Ust-Sysolsk, the expedition members went up the Vychegda River to its upper tributary — the Vol River. At the source of the river, A.A. Keyserling discovered a low mountain composed of black clay shales. These observations became decisive for determining the length of the Timan Ridge, which was further traced in the north-west direction.

Geological and geographical research continued along the Pechora and Ilych Rivers. Here, for the first time, outcrops of ancient crystalline rocks were found and the deposits of the Lower (now Ordovician) and Upper Silurian, Devonian and Carboniferous were described faunistically. Going down the Pechora River on boats, expedition members surveyed the river and examined coastal outcrops. On the Soplesk River, known for a long time for grindstone mining, Keyserling described and first sketched the structure of the deposit [8]. Next, the expedition headed to the sources of the Pechora River, to the Bolvano-Iz site.



Balvano is (Götzenberg der Mantschi).

Fig. 3. Sketch of Bolvano-Iz from the work of A.A. Keyserling [1].

A.A. Keyserling noted that the rocks forming the pillars are represented by quartz-chlorite schists, and their formation is associated with weathering processes (Fig. 3). The height of the shortest pillar is 87 fathoms and it is assumed that the other pillars are more than 100 fathoms high. Today, these objects are the geological monument Manpupuner, the second name is "Bolvano-Iz". This complex is represented by seven remnants with a height of 30 to 42 m.

From the mouth of the river Shchugor in the eastern direction they went to the Ural Ridge. A.A. Keyserling gave a brief description of the rocks of the Saber Ridge: "This ridge, rising about 4000 feet above a marshy, squat terrain formed from fragments of coal shale clay and coarse sandstones, consists of porphyritic breccias, completely indistinguishable from the Solomenskiy stone near Petrozavodsk" [9, p. 155]. In the structure of the Ural Ridge, A.A. Keyserling identified various zones, extending from south to north: the zone of red sandstones with sandstones of Carboniferous age; the absence of Permian deposits for the studied area; limestone zone; Silurian zone, forming the western central mountain range of the Urals; zone of crystalline chlorites and mica schists, composing the main ridge of the Urals.

On July 24, they stopped at the village of Troitskoe and continued down the entire Pechora River to its lower reaches. The descent was accompanied by a precise description of the shores, islands and the river, specifying its length. Having reached the Timan tundra, the scientists carried out further research over a length of 600 miles on sleds with reindeer. A.A. Keyserling described the crystalline rocks of Cape Barmin, Silurian limestones, Devonian sandstones and basalts. He found out that the edge of a low but wide (about 65 km) cliff ridge in the north had been explored.

A.A. Keyserling found similarities with pink granites of Scandinavia in the structure of the northern part of Timan on the shore of the Arctic Ocean. Geologically, he identified crystalline schists with intrusive diorites on Cape Barmin and clay and mica shales in the coastal area along the Kaninskiy Peninsula. Similar shales were traced along the Vol River and in the upper reaches of the Vychegda River.

On the Vashkina River, near the Arctic Sea, shells of the brachiopods Pentamerida, Cythtrina, as well as numerous Silurian corals Calenipora labyrinthica, Calamopora alveolaris and stromatoporates Stromatopora concenlrica, etc. were discovered [1].

Outcrops of coal-bearing limestone with fusulinids up to 100 feet high have been described along the banks of the Indiga River. Further, similar outcrops were found along the banks of the Tsilma River, in the southern parts of the ridge along the banks of the Vol, Yuzhnaya Mylva and Vychegda Rivers.

Outcrops of Permian age were found in the eastern part of the ridge and limestone and gypsum — in the western part. Large accumulations of gypsum were found in the upper reaches of the Vym River, and limestones of Permian age with brachiopods Productus sapsinii were found on the Ukhta and Vychegda Rivers.

Based on the collected geological materials, A.A. Keyserling came to the conclusion that this ridge, like the hills on the Vol River, belongs “to a hitherto unknown uplift system... due to its insignificant height, noticeable only in the treeless tundra”. A.A. Keyserling called this upland the Timan Ridge (from the local collective name) and estimated its length at 800 km [1, p. 236].

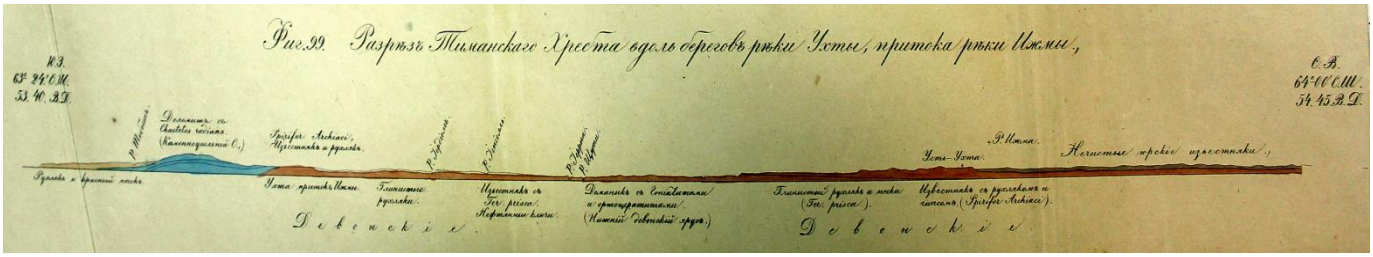


Fig. 4. Section of the Timan Ridge, constructed by A.A. Keyserling, from the Collection of geological maps [3].

Having crossed the Indiga River, on August 31, the expedition returned to the village of Oksina and visited the village of Pustozersk. The route then passed along the Pechora and Izhma rivers to the mouth of the Ukhta River, where the first scientific description of the Ukhta oil-bearing area was made. A special place in the description is given to the “domaniks” on the Ukhta River. According to the description made by A.A. Keyserling, they consist of interbedded shales saturated with oil and fossil remains. They contain “long and thin” orthoceratites, goniatites, mollusks, and brachiopods. The identified species of fossil animals were first discovered in Russia and proved that the Domanik rocks are a new formation of the Lower Devonian. A.A. Keyserling gives a thorough description and carries out measurements on self-flowing oil objects on the Ukhta and Chut rivers. It is also indicated that local residents use these rocks as raw material for stone products. Mention is made of the use of “mountain oil” both from rocks and obtained by distillation from domanik in the form of a skin lubricant for sharpening metal products, as well as for external application in case of diseases.

A.A. Keyserling paid special attention to the rocks of the Jurassic system, which are widely spread on the Pechora plate. The abundance of belemnite species, small molluscs of the genus Avicula, and orthoceratites is noted. The Jurassic rocks exposed at the confluence of the Pechora and Izhma rivers are described in the most detail. In his first publication, A.A. Keyserling gives a description of 52 specimens of ammonoids collected by him from the Domanik shales (Upper Devonian) [10]. He assigned them to the genus Goniatites and described eight species, including four new ones — G. ammon, G. strangulatus, G. bisulcatus, G. uchtensis, currently belonging to differ-

ent genera. In a generalizing work of 1846, A.A. Keyserling gives a description of fossil molluscs, including cephalopods. He characterized nine species of Jurassic ammonites, including new ones — Ammonites Ishmae (now a type of the genus Arcticoceras ishmae), characteristic of the "lowest Jurassic layers" (Lower Bathonian) and two new species of Early Cretaceous (Valanginian) ammonites — Ammonites polyptychus and Am. diptychus (now in the genus Polyptychites) [11].

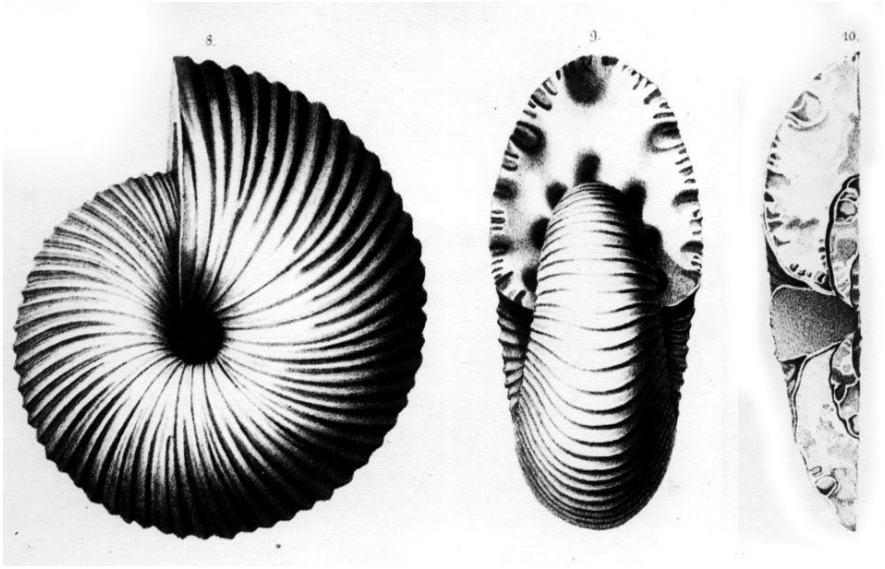


Fig. 5. Ammonites Ishmae from the work of A. A. Keyserling [10].

The stone material collected by A.A. Keyserling was repeatedly studied by other outstanding scientists. Thus, a new species of fossil fish Coccosteus obtusa was discovered by the naturalist and paleontologist Christian Pander in the samples brought by A.A. Keyserling from the outcrop of the Ukhta River [2, p. 302]. However, the most interesting discovery was made by A.A. Keyserling in the Jurassic sediments along the Vizinga River, a tributary of the Sysola River. He discovered the rib of a "large lizard-like creature". Later, this find was passed to Professor Richard Owen, who determined that the fossil remains belonged to the species Plesiosaurus brachyspondylus Owen [1].

In Ust-Ukhta, the expedition split up. On September 17, A.A. Keyserling reached the Vym river through the Ukhta volok. Wash it out. Surveying the river banks, he discovered layers of white gypsum in the dolomite limestones. Then the route continued to the Vychegda River to the town of Ust-Sysolsk. On September 27, A.A. Keyserling visited the village of Seregovo, where he made geognostic observations. He studied limestone outcrops and drilled boreholes 94 fathoms deep (about 172 m). P.I. Krusenshtern went to Ust-Sysolsk by another route — through the upper reaches of the rivers Izhma, Cher Izhemskaya and Cher Vychegodskaya, Vychegda.

In 1844, A.A. Keyserling was awarded the Order of St. Vladimir of the 4th degree for the success of the expedition. The results of the expedition were presented in the book "Wissenschaftlihe. Beobachtungen auf einer Reise in das Petschora-Land, im Jahre 1843" "Scientific observations during a trip to the Pechora region in 1843", published in St. Petersburg in 1846 [1]. In 1847, the authors were awarded the Demidov Prize for this work.

Conclusion

The description of this expedition and the collected geological material from the territory of European Russia became the basis for further geological research in the 19th–20th centuries. Geological and paleontological research by A.A. Keyserling made it possible to compile the first reliable geological map of the Pechora Krai with the Timan Ridge. Keyserling showed the presence of Devonian, Jurassic and Lower Cretaceous sediments in the Pechora Krai with paleontological substantiation. Important geological conclusions include the identification of rocks of Lower Silurian age. F.N. Chernyshev, who studied the geological structure of the Timan Ridge in 1889–1890, appreciated the contribution of A.A. Keyserling in identifying the mountain structure and confirmed its (the ridge's) extension from the upper reaches of the Vychegda River to the coast of the Arctic Ocean [12]. D.N. Sokolov (1867–1919), geologist and paleontologist, after studying the collection of A.A. Keyserling notes: "The fauna of the Pechora Jurassic, including ammonites, is described in detail in the works of Count Keyserling Wissenschaftliche Beobachtungen auf einer Reise in das Petschoraland (1846). Characteristics of ammonites on clarity and accuracy of descriptions, in the absence of verbosity, can be considered exemplary" [13, p. 1].

P.I. Krusenshtern compiled a geographical map on a scale of 1:3000000 with a rectangular geographic grid and detailed mapping of rivers, lakes and settlements. In addition to repeating the astronomical observations of V.K. Vishnevskiy, P.I. Krusenstern determined the coordinates of 47 new settlements. In the work, he describes the waterways used by the locals for trade purposes. The busiest waterway was from the Kama River through the Vishera, Kolva, Visherka rivers, through the Chusovoe Lake, to the Berezovka, Vogula rivers, and then by drag to the Volosnitsa River, which flows into the Pechora. Cherdyn merchants crossed this route, delivering grain from the Volga region to the Pechora Krai. The upper Vychegda River had two waterways, but there was not always enough water in the river in summer, so they were only suitable for small navigable boats. P.P. Krusenshtern mentions the Poshegodskaya and Bolshaya Pechora crossings. A description of 46 main rivers and small tributaries was made. In order to supply timber by water, P.P. Krusenshtern focuses on measuring the depth of the Indigskaya Bay, as well as a thorough study of the communication of the Pechora River with the Indiga River.

Along with a detailed hydrographic description, information about the forests growing on the river banks, fishing, hunting and other economic activities of the local population was collected. As a result of the expedition, the main minerals used by local people for mining (salt, grindstone, domanik, oil) were described; coal on the Soples River, gypsum on the Vym and Pechora Pizhma rivers, copper ore outcrops on the Mutnaya River, flint outcrops on the tributaries of the Vychegda were discovered for the first time.

Subsequently, A.A. Keyserling never returned to the Pechora Krai, but continued his scientific activity. He was elected an honorable member and corresponding member of many Russian and foreign scientific societies.

P.I. Krusenshtern connected his life with the Pechora Krai, conducting not only scientific research, but also engaging in industrial activities. Together with M.K. Sidorov and V.N. Latkin, he was engaged in harvesting and exporting larch mast timber to Russia and abroad. The main problem solved by P.I. Krusenshtern was to build waterways from the Pechora Krai to Siberia and Europe, both through the Pechora River to the Ob River and along the Kara and Barents seas [14].

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"From Northeast Passage to the Northern Sea Route". A New Publication on the History of the Northern Sea Route

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Abstract. The present article provides a brief introduction to the first comprehensive scholarly account in English of the history of the Northern Sea Route (NSR) from the earliest exploration to the first decades of the 21st century. It was published in October 2022 under the title "From Northeast Passage to Northern Sea Route. A History of the waterway North of Eurasia" by Brill Academic Publishers, Leiden, The Netherlands. This introduction touches on a few important issues that are discussed in the volume, which is written by a team of Russian, Norwegian, Dutch and British historians and political scientists. The first stage of this project was carried through in the 1990s, within the framework of INSROP (The International Northern Sea Route Programme (1993–1999)), which was conducted by the Fridtjof Nansen Institute in Oslo. As a result of their efforts four working papers appeared on the history of NSR. In the end a decision was made to develop the topic further into a collective monograph. This second stage of the project, however, started only many years later, in 2015, and was executed in the course of seven years, now under the leadership of the UiT – The Arctic University of Norway. In the present article you will find information about the contents and direction of the monograph, as well as a small sample from the book, chosen from a multitude of other themes, for the simple reason that it is relevant to the recent commemoration of 150th anniversary of Franz Josef Land's discovery (1873–2023).
Keywords: *new publication on the Northern Sea Route, history, geography, Arctic research, international scientific cooperation*

In October 2022 the book «*From Northeast Passage to Northern Sea Route. A History of the Waterway north of Eurasia*» was published by Brill Academic Publishers, Leiden, the Netherlands. This book is the first comprehensive scholarly account in English of the history of the Northern Sea Route, from its earliest exploration to the twenty-first century. It is written by an international team of authors, four Russians, three Norwegians, one Dutch and one British historian. One of the Norwegians is a political scientist. The event, which led to this publication, may be dated back to 1 October 1987, when Mikhail Gorbachev, Secretary General of the Communist Party of the Soviet Union, made his famous speech in Murmansk where he proposed that the Arctic be made into a zone of peace through international collaboration. In this connection he offered to open the

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Northern Sea Route (NSR) up to international shipping.

The reception of Gorbachev's speech in western countries was one of wait-and-see: Was this just another propaganda-stunt from the Soviet Union, or was it a serious initiative to ease the Cold War? It turned out to be the latter, and as a direct result of Gorbachev's initiative six years later a joint multidisciplinary research program was implemented by institutions in Russia, Japan and Norway: the International Northern Sea Route Programme, for short INSROP. The overarching objective of INSROP, which was led by the Fridtjof Nansen Institute in Oslo and its director, Willy Østreng, was to build an inter- and multidisciplinary base of knowledge at an international scale, encompassing all aspects involved in carrying through viable shipping operations along the Northern Sea Route [1, pp. 414–417].

The International Northern Sea Route Programme, which lasted for six years (1993–1999), stimulated the need for reliable historical knowledge about the Northern Sea Route and how it gradually has been explored through the centuries - and how this waterway was put to use. Professor Willy Østreng writes in his foreword to the above-mentioned book:

"A small, but productive multinational team of Arctic-historians – Jens Petter Nielsen (Norway), Edwin Okhuizen (Netherlands), Vladimir Nikolaevich Bulatov (Russia) and Terence Armstrong (England) - took on the job to make the first cooperative international account of the Northern Sea Route's history ever undertaken. The aim was to make this partly secret and unwritten history an integral chapter of world maritime history and available to an extended international readership. Four working papers were published during the years 1996–1998, covering the consecutive periods each respective author had been assigned [1], and a plan took form of writing a comprehensive work on the history of the Northern Sea Route. Based on a unique access to Russian archives and an overwhelming volume of new data, the team soon realized that the task was too grand to be finished within the stipulated lifetime of INSROP. For this reason, the project was put on hold until a suitable window of opportunity would open in the future to conclude what was started in the 1990s" [2, p. XII].

Only in 2015 the project was resumed. In the meantime both Terence Edward Armstrong and Vladimir Nikolayevich Bulatov had sadly passed away [2], and the team, now reduced to two persons, was strengthened with five new members: the above-mentioned Willy Østreng, former director of the Fridtjof Nansen Institute; Vladislav I. Goldin of the Northern (Arctic) Federal University (Arkhangelsk); Olga A. Krasnikova of the Library of the Academy of Sciences in St Petersburg; Alexander Ye. Goncharov of the Siberian State University of Science and Technologies (Krasnoyarsk); and Victoria V. Tevlina, UiT — The Arctic University of Norway (Arkhangelsk-Tromsø).

It took us six years to finish the work. Seminars and meetings between the participants were organised in different cities in Russia and Norway: Krasnoyarsk (2015), Tromsø (2015), St.

[1] INSROP Working Papers: PART I (no. 28-1996); PART II (no. 113-1998); PART III (no. 61-1996); PART IV (no. 84-1997). Published by the Fridtjof Nansen Institute, Lysaker.
[2] T.E. Armstrong and V.N. Bulatov were both aware of the plan to publish a book, so when the project was resumed many years later, it was a matter of course that their names were included as co-authors.

Petersburg (2016), Oslo (2017), Arkhangelsk (2018), Moscow (2018), Kirkenes (2019), Murmansk (2019) [3]. The work with the book was not to be easy. During six years we discussed the format of the volume, its scope and contents, searched for new written sources, new maps and other illustrations from collections in different countries. As a result a book of 500 pages was born, consisting of seven parts, divided into 33 chapters. At the end of the volume there is also a chapter called "The History of the Project and its Authors", where you can learn more about the background of the project and its participants from Norway, Russia, the Netherlands or Great Britain.

There are 173 illustrations in the book, among them portraits of travellers, captains, indigenous inhabitants of the North, and also images of ships, harbours, and an abundance of old maps connected with the development of the Northern Sea Route. Among the illustrations are paintings by Aleksandr A. Borisov (1866–1934) — the prominent Arkhangelsk artist and outstanding representative of the Kuindzhi school of Russian landscape painters. Borisov's paintings appear at certain strategic points in the book and even complete it. While his contemporaries were mostly painting the countryside around Moscow, in central Russia, Borisov set out to paint the inhospitable landscapes of the Russian Arctic, opening a new chapter in the history of Russian art. The Museum of the Artistic Mastery of the Russian North from Arkhangelsk, gave us permission to publish eight of Borisov's paintings. These paintings illustrate the Arctic nature as it was understood by a Russian painter at the turn of the 19th and 20th centuries. Interestingly enough, during this period Russia also saw a revival of official interest in the northernmost parts of the country, and a breakthrough for the idea of a waterway north of Eurasia.

Viktor Boyarskiy, chairman of the Polar Commission of the St Petersburg Branch of the Russian Geographical Society, and Honorary Polar Explorer (Polyarnik) of Russia in his foreword to the book states that the truly international team of authors «predicates a more objective examination of the history, alongside broader materials, maps and illustrations – many of them never previously published. I consider that a book of such significance will broaden the understanding of the historical role of exploration of the Northern Sea Route in developing the Arctic, and will provide a reliable basis for predicting its future» [2, IX].

From Northeast Passage to Northern Sea Route covers i.a. the slow but steady Russian exploration of the Siberian coasts through the ages, as well as the West-European search for the Northeast Passage to the Orient (sixteenth to seventeenth centuries), the Russian Kamchatka expeditions (eighteenth century), and the navigation from Europe to the major rivers in north-west Siberia (late nineteenth to early twentieth century), as well as the Russian utilisation of the sea route in the Soviet epoch and later. The book demonstrates that the exploration and early use of the NSR to Siberia was a truly international endeavour, involving not only Russian investors and seafarers, but also businessmen and shipowners from England, the Netherlands, the Scandinavian countries and Germany. In the end, however, the Northern Sea Route as a through traverse came

[3] Goldin V.I. Sevmorput': k noveyshey istorii voprosa [Northern Sea Route: to the modern history of the issue]. URL: https://goarctic.ru/work/severnyy-morskoy-put/ (accessed 01 November 2023).

to be used primarily by the Soviet Union, for which it became a crucial vehicle of geographical and economic integration of its vast territories.

Northeast Passage is a Eurocentric denomination which in our days has become more and more replaced by the Russocentric term "the Northern Sea Route" (*Severnyy morskoy put*), which is more multifaceted. This later term, which came into general use in the 1930s, draws attention towards the Russian coasts, and what they have to offer, rather than towards the sea route as a through passage between the West and the East. The Northern Sea Route has clearly played an important part in forging Russia into what it is today. This was a slow process, however. First Russia had to reach all the seas that eventually came to wash "the shores of the Russian Empire": the Arctic, the Baltic, the Black, the Caspian and the Pacific. The Russian control of these coastlines was completed after a century-long fundamental process of seaward expansion within Eurasia, a process which historians have named "the urge to the sea" [3].

The Northern Sea Route has even been called "the Soviet national idea", and one important aspect of the NSR was that it could help consolidate Russia's vulnerable northern peripheries. Russia's sovereignty in the Russian part of the Arctic was, as it seemed, particularly challenged by Norwegian activity in the West, and American in the East. Even if, according to international law, it was unnecessary for the occupying state in polar areas to be present at all times in all parts of the land, it was and is a requirement that the occupying state should be able to control it permanently and effectively. In the 20th century scientific activity became more and more important in this respect and contributed for instance significantly, as A.A. Saburov writes, «to the consolidation of Franz Josef Land and Novaya Zemlya for the Soviet Union, and Spitsbergen, Bear Island and Jan Mayen for Norway. This progress was achieved thanks to the fact that scientific institutions through regular expeditions and the establishment of polar stations provided for a permanent presence on Artic islands and archipelagos» [4, Saburov A.A., p. 14]. The military factor became significant too for Russia, in particular after 1905, when the Russian Baltic fleet was destroyed in Tsushima Strait during the Russo-Japanese War. As early as 1897, Vice-Admiral S.O. Makarov had drawn the attention of the Russian Naval Minister to the possibility of transferring units of the Russian fleet to the Pacific across the Arctic Ocean. This is apparently the earliest recorded mention of the potential military and strategic importance to Russia of the Northern Sea Route. Only after Tsushima, however, the Russian authorities started exploring the possibility of sending war ships to the east via the Northern Sea Route in the future.

One should also single out regional economic interests on the part of Northern Russia and Siberia as a driving force, and in the late Imperial period they were not necessarily identical with those of Central Russia. The Siberians were often critical of the slowness of the Russian government in developing a Northern Sea Route [5]. In order to implement this idea, regional protagonists of a Northern Sea Route tried to ally themselves with foreign seafarers or businessmen. One important question that is discussed in this volume, is the significance of the Russian Revolution of 1917 and the Bolshevik assumption of power for the breakthrough of the Northern Sea Route as

an important waterway for Russia. Is it conceivable that the Northern Sea Route would have become of crucial importance to Russia in the interwar period and beyond without a revolution? [6, Armstrong T.; 7, Pinkhenson D.M.].

Today the NSR is more topical than ever in history. The team of authors behind this book as such is neither for nor against the NSR as an international transit route. Our task has only been to make sure that the history of its exploration and use is thoroughly studied and made available to a broad circle of readers. History shows that the NSR has never been looked upon as something inevitable, something that should be taken for granted in the long run. Admiral Fyodor Litke, president of the Russian Academy of Sciences (1864–1882), and the well-known German geographer August Petermann were both sceptical about it, because they did not believe in the navigability of the Kara Sea. A.E. Nordenskiöld, who disproved their scepticism by sailing across the Kara Sea and all the way through the Northeast Passage in 1878–1879, could not bring himself to believe in it as a feasible international transit route [8, Nordenskiöld A.E.]. Neither did B.A. Vilkitskiy after the large scale Russian Arctic Ocean Hydrographic Expedition (1910–1915). This was the first through navigation of the NSR from the east to the west. The expedition encountered almost insuperable problems along the way, caused by ice and shallow waters, and Vilkitskiy foresaw that it would be many years before there could be a practicable transit route for naval vessels north of Siberia. And he was right. Such a transit took place for the first time only in 1936 [4].

Neither was the INSROP Programme of the 1990s clear in its conclusions concerning the feasibility of the NSR. The final report from this programme (1999) notes that: "Unless speed can be increased substantially, this will rule out the NSR as an economically feasible alternative to the Suez and Panama Canals for transit voyages" [1]. It stated further that higher speed presupposed radical improvement in shipbuilding technology and navigational systems. Global warming was as yet not ascribed decisive importance at the time, as it could be understood as natural fluctuations between cooling and warming that had been a recurring pattern throughout the age-old climatic history of the Arctic. Today the realization has dawned that the melting of the ice in the Arctic Ocean will continue, and global warming has genuinely changed the prospects for the NSR. At last it has become feasible as a international sea-borne trade route between West and East. Should we rejoice or despair? Will the NSR be sustainable in the long run when it is based on climate change, which obviously is negative and even dangerous to the planet [9, Wadhams P.]? These and other crucial questions concerning the future of the Northern Sea route are addressed in the last chapters of the book *From Northeast Passage to Northern Sea Route. A History of the Waterway north of Eurasia*.

[4] See more: Ekspeditsiya osobogo naznacheniya 3 [An Expedition for a special purpose 3] (film January 17, 2010). URL: https://www.youtube.com/watch?v=Fy_d15m27cI&feature=youtu.be (accessed 01 November 2023); Sekretnaya ekspeditsiya: OM-3. Iz dnevnika kinooperatora Marka Troyanovskogo. Muzey TsSD RF [Secret expedition: EON-3, Arktika. From the diary of the camera-man Mark Troyanovskiy. Museum of contemporary dramatic art of the Russian Federation]. URL: csdfmuseum.ru (accessed 01 November 2023).

Conclusion

In conclusion we would like to bring a small sample of "From Northeast Passage to Northern Sea Route", and we chose a few pages on Franz Josef Land, due to their relevance for the recent commemoration of the 150th anniversary of the discovery of Franz Josef Land (1873-2023):

"Until about 1860 the North-Norwegian sealing vessels had hunted almost exclusively along the western coasts of Spitsbergen. During the 1860s their hunting industry started to expand, and the stocks of walrus, seals and polar bears on the Svalbard archipelago were rapidly decimated. The sealers now pushed farther to the north and east, into as yet uncharted waters. In 1865 a Russian naval officer, Baron N.G. Schilling, had suggested in a work on sea currents in the Arctic Ocean the existence of an Arctic archipelago between, and to the north of, Novaya Zemlya and Svalbard [10, Perevalov V.A., pp. 170–171] [5]. He substantiated his hypothesis i.a. with the fact that there was never pack ice along the northern coasts of the Kola Peninsula and Norwegian Finnmark. Since there could be no doubt that a sea current transported the ice from the north-east to the south-west in the Arctic Ocean, these coasts should have been covered by almost year-round pack ice, in the same way as the northern coasts of Siberia. The Spitsbergen archipelago itself could not retain ice masses of several tens of thousands square miles; so the only possible explanation was that there existed unknown territories between this archipelago and Novaya Zemlya, forming an impediment for the drifting ice [11, Schilling N.G., p. 219; 12, Horn G., pp. 11–12; 13, Kremer B.A., pp. 147–150; 14, Krenke A.N., pp. 129–130].

Only a few months later, as a result of an exploratory voyage in 1865, a skipper from Hammerfest by name of Nils Rønnbeck discovered some new land that he called North-East Spitsbergen, and which many Norwegians identify as the western fringes of the archipelago today known as Franz Josef Land. This discovery cannot be said to be well documented, and remained unknown to most Norwegian sea mammal hunters at the time [15, Carlsen E.; 16, pp. 298–299] [6]. This is evident from a newspaper article, written by the medical officer of health in the municipality of Alta and published in the newspaper Aftenbladet in 1871. The author was unaware of Rønnbeck's alleged discovery, but on the basis of knowledge provided to him by other sea mammal hunters in the area, he all the same suggested the existence of land between Svalbard and Novaya Zemlya. He based his theory exclusively on circumstantial evidence, namely the existence of a reindeer population on Spitsbergen Island.

The crucial question was how the reindeers originally arrived there. The only possible way from the Eurasian mainland would be over the ice from Novaya Zemlya. But the distance between

[5] It's interesting that M.V. Lomonosov foresaw the existence of a large island or archipelago northeast of Spitsbergen in 1761.

[6] From Elling Carlsen's book about the Payer-Weyprecht expedition, in which he participated as an ice pilot, it is clear that he was unaware of Rönnbeck's supposed discovery. For complete information on this issue, see Nielsen J.P., ed. Sblizhenie. Rossiya i Norvegiya v 1814–1917 godakh [Rapprochement. Russia and Norway in 1814–1917]. Moscow, 2017, pp. 298–299.

Novaya Zemlya and Svalbard is so vast that the reindeers would have starved to death on the road if we do not presuppose the existence of some islands midway, where they could have found something to eat [17, Follum L.]. So both in Russia and Norway there were people who theoretically foresaw the discovery of this archipelago. In 1870 two eminent Russian geographers, A.I. Voyeykov and P.A. Kropotkin, actually planned to send a reconnaissance expedition to look for the land that Baron Schilling had conjectured existed, but they could not secure a grant.

So, the actual, first documented discovery of this archipelago came as a result of the Austro-Hungarian Tegethoff or Payer-Weyprecht expedition, which had not intended to go in this direction. One of the aims of the Tegethoff expedition of 1872–1874 was to navigate the whole length of the Northern Sea Route, approaching it from the open waters which were thought to exist to the north of Novaya Zemlya. The plan was to spend the first winter at Cape Chelyuskin, and then continue the investigation of that part of the Arctic Ocean the following summer. During the expedition's third summer they hoped to be able to make their way along the Northern Sea Route to the Bering Strait and thence to a port in Asia or America [18, Payer J., pp. 9–12; 19, Holland C., p. 290; 20, Vaughan R., pp. 164–165; 21].

While in Tromsø, the Austrians hired the experienced Elling Carlsen as ice-pilot. None the less, only a few hours after Count Wilczek had left them on the western coast of Novaya Zemlya, the Tegethoff was caught fast in the ice, never to get free of it again. Instead of navigating the Northern Sea Route they drifted with the ice in a generally north-westerly direction until they in August 1873 became stranded on a hitherto unknown Arctic archipelago, which they named Kaiser Franz Josef Land, after the Austrian-Hungarian Emperor [22, Schimanski J., Spring U.; 23, Davydov R.A.] [7]. So, as was the case with Spitsbergen, Franz Josef Land was also discovered as a by-product of the search for the Northern Sea Route".

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Efforts to Restore the White Sea Fishing Fleet in the Initial Period of the NEP

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Abstract. The recovery period of the early 1920s in Soviet Russia coincided with the search for new forms of production management and was complicated not only by economic devastation, but also by the difficult international situation, political and economic blockade of the country. Under such conditions, the long overdue task of modernization of fishing and fur-trading was solved in the Arkhangelsk province, which first of all required providing the fishermen with the newest vessels. Lack of coal did not allow using steam vessels in full measure in the fishery; purchase and construction of vessels at foreign shipyards were also difficult. Therefore, it was decided to restore peasant shipyards as a temporary measure, centrally organizing the construction of small fishing vessels under the supervision of qualified technicians. The models used were Norwegian-built sailing, rowing and motor vessels, which were considered to be the most suitable for fishing in the White Sea and Arctic Ocean. The difficulties that the economic institutions had to face during the transition period (from war communism to the new economic policy) are considered in this article with the help of a large set of archival and published sources. The transition to the use of trawlers and icebreakers is explained not only by the tasks of modernization of the fishing economy, but also by the revolutionary ideology: to prevent conditions for the emergence of a prosperous layer of the Pomor population, which included shipbuilders and shipowners.
Keywords: *1920s, Arkhangelsk province, White Sea fisheries, fishing fleet, peasant shipyards,* Soviet power, managerial decisions, *military communism, new economic policy*

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The so-called “broken” rhythms of Russian history do not allow the development process to be completed, interrupting it either with “stagnation” or revolutionary change. Peasant shipbuilding can be referred to such “unfinished” innovations of folk technical creativity.

The history of Pomor shipbuilding during its heyday has not been neglected by research attention [1, 2, 3, 4, 5]. The present article offers a look at the short period of restoration of the almost forgotten occupation in the 1920s.

By the beginning of the 20th century, a significant part of the Pomor villages reoriented from marine fisheries to trade operations with Norway. For trade, even during coastal navigation, and for the fisheries that continued to exist, ships were ordered from the still existing centers of Po-

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mor shipbuilding (in the villages of Patrakeevka, Zimnyaya Zolotitsa, Koida, Vorzogory, Syuzma and others) [6, pp. 24–25] or were purchased in Norway, where they switched to motor deck fishing vessels and got rid of outdated ones: "For 100–150 rubles, the fisherman bought an old yola [1] with all the equipment in Varda and, repairing it from year to year, fished on it for a dozen or more years." Due to cheapness of Norwegian fishing vessels, Pomor small boats were gradually displaced and "there was an appearance of transition to a "newer" type of fishing vessels" [7]. At the same time, there was an orientation (following the example of England and some other European countries) towards the use of large sea vessels; in terms of fishing, the future was seen in minesweepers (for fishing) and icebreakers (for hunting). During the First World War, the few remaining peasant shipyards fulfilled orders for the construction of large barges to transport military cargoes along the Northern Dvina and other river systems.

This orientation acquired practical forms at the end of the war, when trawl vessels and icebreakers began to be transferred to fishing artels and cooperatives. However, the Civil War actually eliminated not only the centers of peasant shipbuilding, but also the Pomor fisheries themselves, since sea navigation remained unsafe and the mobilization of the male population became massive.

After the end of the war, which lasted for several years (from 1914 to 1920), the general economic devastation and the economic blockade on the part of Western countries required the restoration of not only the Pomor fisheries, but also the practice of building small sailing fishing and transport vessels, since the lack of coal did not allow widespread use steamships and icebreaker fleet. Besides, fishermen, especially hunters, were convinced that "wooden vessels are more reliable for navigation in ice than iron ones" [6; p. 25]. There were also more serious doubts about the expediency of using the icebreaker fleet: "...fishing from icebreakers in the close confines of the White Sea, with the enormous costs of their maintenance, cannot recoup the expenses... the results will eventually be unprofitable. It's better to switch to small vessels…" [8; p. 86].

However, it became difficult to buy them in Norway. The introduction of a monopoly on foreign trade operations led to the cessation of the import of old yolas, and those already purchased deteriorated and became unusable. As a result, if in 1913 the fleet of the Arkhangelsk Pomors (engaged in the Murmansk fisheries) consisted of 1116 vessels of various types, then in 1923 there were 891 ones (244 karbasses, 301 shnyaks, 433 sail-rowing and 5 motor yolas, 85 sailing and 21 motor boats). In 1924, there were already 807 vessels [7].

The policy of nationalization of the main industries required the organization of centralized construction of fishing vessels for "state fishing". Even during the period of "peaceful respite" (in 1918), the Provincial Food Committee, in order to provide the population with fish (the purchase of which in Norway was difficult due to the lack of currency and goods for barter exchange), "organized the construction of up to 30 pieces of open boats, which turned out to be completely un-

[1] Yola is a Norwegian fishing vessel without a deck.

suitable for fishing" [7]. Attempts to organize own production later were also not very successful [2]. It was decided to return to the handicraft production of fishing vessels, obliging peasant craftsmen (during the period of military communism) or giving orders favorable terms for them (during the early NEP stage).

In the first days after the restoration of Soviet power in Arkhangelsk, in March 1920, the provincial authorities took up the task of reviving the national economy and solving the issue of food supply for the population. An audit of fishing vessels was carried out. It turned out that "the vessels were dilapidated, not repaired, no new vessels were built", and "the small shipbuilding plant in Onega was completely ruined..." [3]. L.B. Krasin, who was abroad and engaged there in the whole complex of works to attract foreign capital for the restoration of the economy, negotiated with British shipyards on the construction of fishing vessels, including for the White Sea area, which were "ready to take installments for 25–30 years", providing a loan on very difficult terms and, as Krasin wrote, "doubtful, but with its help the economy will rise..." [9; p. 38, 39]. In the meantime, efforts were being made to raise steamships sunk during the wars ("but there had not yet been a technical inspection, and it was not possible to say whether they would be suitable for further navigation"), and the search for craftsmen for artisanal "construction of small ships from available material" began [4].

Since the shipbuilders belonged to the "wealthy" stratum, the authorities' demand to restore peasant shipbuilding under the conditions of war communism took rather harsh forms. In March 1920, a circular letter was sent to Pomor villages: "To all revolutionary committees and executive committees, and if there are none, then to zemstvo councils. The villages of the coastal ocean region are subject to: preparations for fishing at the most accelerated pace, and all large owners are required to repair their vessels. According to information, vessels are not being repaired and are not being prepared for fishing. This is a crime against the Soviet Republic. The perpetrators will be punished by revolutionary law. <Since> small handicraft shipbuilding has to be encouraged, arrange the matter so that there are as many small vessels as possible. ...On the issue of food, we hope to provide increased rations, tea and sugar. We will provide financial assistance" [5]. They urged to organize shipbuilding and fishing artels, since it was believed that with this form of labor association, the "owners" would be deprived of the opportunity to "exploit the sea workers". It was the artels that created more favorable conditions for profitable orders and the provision of food rations.

There was a rather cumbersome bureaucratic system of management of peasant shipbuilding at the state and provincial levels. The shipbuilding department of the Arkhangelsk Provincial

[2] In 1923, the Arkhangelsk "Oblastryba" built six motorboats on its own at the Arkhangelsk shipbuilding plant transferred to its management, "but the matter did not come to fruition, and [the vessels] were handed over to the fishermen" [3].
[3] State Archives of the Arkhangelsk Oblast (SAAO). F. 655. S. 1. C. 3. S. 3.
[4] Ibid. S. 3.
[5] SAAO. F. 884. S. 1. C. 5. S. 6.

Economic Council (the so-called "Sudostroy"), to which all local shipyards and boathouses, the entire available stock of materials and rigging were transferred, turned out to be ineffective. According to information of the head of the trawl department of the Regional Directorate of State Fisheries Enterprises ("Oblastryba") V.S. Griner [6], "in 1920–1921... they produced a dozen and a half more or less unsuccessful boats" [7].

In 1921, the Council of Labor and Defense issued a decree "On the organization of wooden shipbuilding", according to which "the disposal of shipbuilding materials and other resources, and the resolution of other issues" was transferred to a commission of representatives of the Supreme Council of National Economy, People's Commissariat for Lines of Communications, Glavleskom, Glavryba, etc. [7] Corresponding powers were given to their local authorities. The functions of the Arkhangelsk Shipbuilding were transferred to the Northern Region Shipbuilding Administration (Sevkomsudostroy), established in October 1921. According to local authorities, "due to ... transfer of all wooden shipbuilding to the People's Commissariat for Lines of Communications (PCLC), 90% of the time was spent on internal departmental struggle, since the PCLC did some work on barge construction, but was not interested in commercial shipbuilding, only interfered, delaying specialists and workers..." [8]. Due to local circumstances, issues of commercial shipbuilding were transferred to "Oblastryba", which began organizing the construction of ships at various sites, including small vessels.

The general mismanagement inherent in the period of war communism led to the fact that the vessels under construction, which were indiscriminately nationalized (based on the order of the Arkhangelsk Provincial Revolutionary Committee of March 20, 1920), turned into "long-term construction". As we can assume, there were many such cases. The archives preserved correspondence on the statements of the most active owners of nationalized property, who tried to restore their rights after the transition to the NEP, when it was explained that a Pomor peasant could regain his ship or karbass workshop if it was the only source of livelihood for him and his family. Many people managed to get their property back, but not all.

The story of the construction of a two-masted fishing vessel by a peasant of the Patrakeevskaya volost I.I. Antufiev demonstrates the ordeals that Pomor shipowners had to face [9]. He started the construction in February 1920, two weeks before the change of power in Arkhangelsk. The Soviet authorities immediately cancelled the White government's financial support ("chaykovki"), and there was nothing to finish the construction with. Antufiev applied for a loan from the Shipbuilding Department of the provincial Economic Council and continued construction with the 100 thousand rubles received on credit in Soviet banknotes. He, being a captain, was "mobilized" to the fishery. While he was at sea, the artel hired by him was also sent to other works un-

[6] Griner V.S. – head of Sumskaya (Arkhangelsk province) seafaring school; in 1920 – head of the trawl subdivision of the Oblastryba. In 1929 he was repressed (10 years in camps).
[7] Izvestiya VTsIK. 1921. 4 Aug.
[8] SAAO. F. 150. S. 3. C. 523. S. 47.
[9] Ibid. C. 569. S. 85-111.

der labor mobilization. Antufiev hired a ship master A.G. Titov, who agreed to complete construction. But in November 1920, Sudostroy, on the basis of a loan issued to Antufiev, suspended the owner completely from managing the construction, even without compensation for expenses incurred. The case went to court, which in May 1922 declared that the nationalization was correct, since the applicant "has another ship that can serve him for his livelihood" [10].

It was not possible to find out from the documents the fate of the unfinished vessel. But it would not be surprising if it suffered the same fate as other property, such as a karbass workshop in the village of Kehta [11], which was dismantled shortly after nationalization "as unnecessary" and taken to Solombala for a shipyard. "Oblastryba", having inherited the property of "Sudostroy", quite often put up for auction nationalized vessels standing idle and gradually deteriorating [12].

Simultaneously with such treatment of the received property, work on the establishment of local commercial shipbuilding was carried out quite actively. The V provincial Congress of Soviets (January 1921) adopted a resolution on this, based on the central orders. The focus was on the construction of sea boats for the fisheries. On this basis, smaller shipbuilding centers were almost closed. "Oblastryba", which was organizing the construction of vessels for marine fishing, "had to take under its protection the artels of karbass workers located up the Dvina", since "due to local conditions, in summer the only type of transport is karbass" [13].

Fishery shipbuilding was concentrated in a few relatively large locations:

- The "Central Arkhangelsk Shipyard" (in Solombala) was engaged in small and medium repairs of trawl vessels (converted from minesweepers left in the port after the First World War) and manufactured boats for them. The lack of necessary rigging prevented the construction of sea boats. To solve this problem, block and sail workshops were set up. In addition to sails, the sailing shop sewed special clothes for fishermen.
- The Kehot shipbuilding station carried out "according to approved drawings" the construction of new types of seiners, half-deck fishing vessels and sea karbasses. In winter, work was carried out in the boathouse and in the workshop for small vessels.
- The Mudyug shipbuilding center started building deck boats and cutters for the hunting industry [14]. The Syuzemskiy, Onega and Kaninskiy (Mezen) shipbuilding centers started building seiners and half-deck fishing vessels. A deck boat was laid down in the Laiskiy Dock [15].

An important circumstance was that shipyards sought to adapt for the construction of fishing vessels according to Norwegian models. Over the previous decades, the Norwegians almost completely "occupied" not only the fishing industry (and the Pomors were engaged in delivering

[10] Ibid. S. 111.
[11] Ibid. S. 461-464.
[12] Ibid. S. 287.
[13] Ibid. C. 523. S. 47.
[14] Cutter — a sailing (single-masted) vessel for fishing in coastal and shallow sea areas.
[15] SAAO. F. 150. S. 3. C. 523. S. 25-27.

fish from Northern Norway for the Arkhangelsk market), but also shipbuilding: with a few exceptions, shipowners bought Norwegian yolas and boats, specially adapted for fishing in the White Sea. In the initial period of NEP, specialists from provincial economic organizations regularly travelled abroad to purchase vessels [16], which were also used as a model for their own shipbuilding. At the provincial level, the question was raised about the need to "get drawings of boats for herring fishing in Norway and start building them in Arkhangelsk" [17]; in the village Kehta on the Northern Dvina "on the model of the Norwegian yola... under the guidance of a shipbuilding technician, 7 pieces were built, [to which] an engine can be adapted" [10].

In 1922, 17 boats were ready for launching, but "they have no engines. These boats are designed for longline fishing in the ocean and are completely unsuitable without motors, because fishing is good in calm weather, and then they will not work under sails. Moving a boat 10 miles with oars is unthinkable." "Oblastryba" tried to resort to a proven method: to "register motors" (that is, to requisition them from private owners for the needs of local industry), but did not achieve "positive results" — there were no motors in Arkhangelsk, even those in need of repair. "The acquisition in Petrograd, apart from significant correspondence, sending special agents and spending money, also did not give positive results". It had to be stated that "there is no need to talk about the motor fishing fleet yet" [18].

The lack of engines was the biggest problem, but not the only one. Shipbuilding faced the issue of labor shortage; craftsmen were constantly diverted to other works. There was no material for making sails (they were sewn from captured English tents). The difficulties faced by the organizers of commercial shipbuilding are evidenced, for example, by the fact that they had to urgently "organize" a "coal miners' artel to obtain coal for forging work" [19].

In the conditions of the developing NEP, it was also necessary to close unprofitable production facilities. Already in March 1922, the work "on liquidation of shipbuilding in Onega shipbuilding region of the Arkhangelsk Oblastryba" was carried out. It was proposed to sell the existing vessels, 5 undecked and 6 decked boats, to Murmanskryba, and if the price does not suit them, look for other buyers, for example, fishing cooperatives. At the same time, "payment is exclusively in kind": flour, tea, sugar, cod fish. They demanded 3.2 tons of fresh cod or haddock, or 2.4 tons of salted fish for an undecked boat [20].

The short period of restoration of peasant shipbuilding occurred during the last stage of the implementation of the policy of war communism and during the initial period of the new economic policy. Let us illustrate the events of economic transformations in the context of transition from administrative-command forms of management to the use of market mechanisms using the example of the Syuzemskiy shipbuilding center.

[16] Ibid. C. 569. S. 790, 828.
[17] Ibid. C. 3-a. S. 1-4.
[18] Ibid. C. 523. S. 47.
[19] Ibid. S. 49.
[20] Ibid. S.40.

The promise of increased rations for shipbuilders inspired the Pomors, and in the spring of 1920 an artel was created in Syuzma. Building wooden ships remained a traditional occupation for the Syuzma people. Even when the demand for them decreased, craftsmen remained, fulfilling small orders in parallel with other peasant occupations (which provided not so big, but reliable income). They hired local apprentices to help them, and the tradition of craftsmanship did not die. Timber was rafted down the river, nails and sailcloth were imported from the town. At the beginning of the 20th century, there was no forge in Syuzma, but a blacksmith from the nearest settlements (most often from Nyonoksa or Una settlements) was hired for the time of boat building. There were other conditions for building small fishing vessels here: "up the Syuzma River, five or more miles away, crooked timber and small timber are harvested, 15 miles away — medium-sized timber, 20 miles away — construction timber. There is also an abundance of various emery stones" [21].

The creation of the artel, conditioned by a strict directive from the center, met the interests of the population of Syuzma, whose food situation was characterized as "catastrophic", and who appealed to the authorities with requests to provide them with at least some work [22]. In the conditions created as a result of deindustrialization, the population switched to self-sufficiency, engaging in coastal fisheries and agriculture, which was unproductive in local conditions, but still provided a certain amount of necessary products; they did not risk being diverted to shipbuilding without food supplies. And when the promised rations were not provided, the people of Syuzma returned to agriculture. The revived shipbuilding acquired the same forms of mismanagement as many other activities restored through labor and horse-drawn mobilizations.

G.G. Kramarenko, a technician-instructor sent to inspect the Syuzma shipyard, described what he saw as follows: "due to the food crisis, the local population suspended work [on the construction of sailing ships]. Unfinished ships are lying unsupervised on the shore, as well as wood material. Iron and other construction materials are stored in poor condition. The blacksmith from Una village with all his tools has also left Syuzma. There is no person responsible for storage..." [23]. Members of the artel, referring to the lack of promised food, constantly "asked for leave" for haymaking and other peasant work.

Kramarenko noted that from the technical point of view, all the conditions for the construction of small sailing and rowing vessels are available here. The most painful issue was "personnel". The usual method of hired labor (labor mobilization) at that time was useless here, since the shipbuilders were "old people and half-disabled", exempt from them "by decree". The carpenters available in the village, mostly self-taught, but "some are truly talented craftsmen", turned out to be already involved in the transportation of goods or in fur-hunting artels. However, as the seconded specialist summarized, "if food were to be provided for a family, almost everyone in the

[21] Ibid. C. 320. S. 13.
[22] Ibid. C. 740. S. 19.
[23] Ibid. C. 320. S. 13.

population of Syuzma, which is in such need of bread, would be willing to join the [shipbuilding] artel. The craftsmen, though old, could supervise the work of carpenters, who could be assembled up to 35 people. Another 20 peasant men and women could be engaged in harvesting, rafting, transporting timber, heating a steam room, doing riveting, tarring and other types of less skilled work. A blacksmith from Una, very old (over 70), "with a good ration, he would also go to work in Syuzma with all his tools". In addition to food, leather shoes for woodcutters were required, as well as the delivery of rivets and nails, which were impractical to produce locally and had nothing to be made of. It was also proposed to transfer builders to contract work, which, according to the technician-instructor, would increase labor productivity "by 4–6 thousand percent", since there would be a personal and collective interest in the results of the work, "reduce clerical red tape and unnecessary staff for control, accounting, supply, etc." [24].

Indeed, at the general meeting, the peasants announced that not only the carpenters, but all 45 members of the local hunting artel would begin work, but only after receiving enhanced rations and a "decent bonus". Together they promised to complete the construction of two flat-bottomed fishing boats [25] within two weeks and re-equip several prepared boats into seine boats [26].

"Oblastryba" also entered into agreements with other shipbuilders. For example, in February 1922, an agreement was concluded with the karbass artel in the village of Kehta for the construction of a seine boat, the payment for which was agreed upon in the form of food equivalent (rye flour, salted fish, textiles, salt, sugar, tobacco and shag) 225 rubles in gold [27]. At the same time, an agreement was concluded for the construction of two fangsboats [28] with two Solombala boat masters (V.V. Katyshev and P.E. Shestakov) "from ready-made material according to the design and drawings of the mechanic-instructor Kramorenko", who provided technical supervision of the construction and "dismantling of the vessel on site". The craftsmen asked for 300 pre-war rubles (4.5 million in Soviet banknotes of 1922) for the work, also preferring to receive payment in the form of food and consumer goods [29].

As the general economic situation in the country and in the region improved, "state fishing" began to be carried out on large steam vessels. However, economic and cooperative institutions continued experiments in the construction of small fishing vessels for sale to Pomor artels and individual industrialists.

In 1924, the Kehotskaya artel received an order from Oblastryba to build seven Norwegian yolas (an old yola was brought from the Murmansk coast as a sample). "Despite the sample, the craftsmen made a number of deviations, and although the yola turned out to be suitable for fishing, they did not quite correspond to the Norwegian type" [7]. And the cost of production was

[24] Ibid. C. 320. S. 13об.
[25] Dora — flat-bottomed fishing boat with a wide stern, common on the coast of the White Sea.
[26] Seine boats — boats from which the seine was cast.
[27] SAAO. F. 150. S. 3. C. 1. S. 579.
[28] Fangsboat — a fishing motor or rowing vessel for harvesting sea animals, as well as for carrying passengers.
[29] SAAO. F. 150. S. 3. C. 1. S. 570.

quite high, which did not attract fishermen. They tried to sell yolas by installments, but this turned out to be unprofitable for the government agency due to regular late payments.

They also tried to supply local fisheries (both state-owned and cooperative or private — "handicraft") with vessels through purchases from the traditional supplier, Norway. Before the revolution, old sailing ships were "utilised" by selling them to Russian Pomors during the transition to motor fishing vessels. In 1920, proposals began to be received "for the sale or lease of their fishing motor boats to Russian industrialists" [30], which was explained by the economic crisis in Norway (caused, among other things, by the cessation of Russian purchases of Norwegian fish [11]). An opportunity arose to purchase large hunting vessels from the Norwegians for fishing in the White Sea. According to the head of "Oblastryba" M.K. Derzhavin, they "are happy to sell ships at half price" due to the Soviet side strengthening the protection of its territorial waters, which created difficulties for the Norwegians to fish there. (However, after the creation of the Norwegian concession and permission for 55 Norwegian ships to fish in northern waters, prices increased again: "Before this agreement, vessels in Norway cost 30 thousand krones, now the price has risen to 90") [31].

Taking advantage of the opportunities provided by the NEP, various organizations began to buy ships in Norway for the purpose of their further resale or rental to Pomors. From 1922 to 1924, Murmansk organizations purchased several dozens of motorboats, yolas and listerboats from Norway [32]. The Karelian Agricultural Bank bought 5 yolas in 1925. However, it was not always possible to generate income; lack of funds did not allow the Pomor artels to purchase vessels; if they bought them in installments or on lease, they often delayed payments.

It was more important for the Soviet economic authorities to organize local shipbuilding. It allowed not to spend foreign currency and reduced the cost of fishing vessels due to the use of cheaper labor and raw materials.

A new yola with a lifting capacity of 2.4 tons "with anchor and chain" built in Varda cost 720 rubles; payment for delivery to Murman and other expenses increased the cost by another 50–100 rubles. Built by local craftsmen, it cost 650 rubles. [7]. However, the relative cheapness was only at the Arkhangelsk shipyards, which built ships by order of Murmansk organizations, and was explained by the use of "handicraft labor" of local artels and craftsmen. In Murmansk, the construction of fishing vessels was unprofitable: the cost of timber and the price of labor here was 1.5 times more expensive. In addition, "when starting a business on the basis of an enterprise" (which involved payments for social insurance, the trade union, the maintenance of managers, vacation payments and other compensation to workers), it was impossible to compete with artisans, and the cost of yola was more expensive than purchasing it in Norway (850 rub.)

[30] Ibid. C. 20. S. 87.
[31] Ibid. F. 150. S. 3. C. 740. S. 3-5; SAAO. F. 893. S. 1. C. 48. S. 140.
[32] Listerboat — an open sailing and rowing fishing vessel.

However, commercial success, which was hoped for in the initial period of NEP, was not the main issue for the Soviet state. Handicraft fishing, including handicraft shipbuilding, was perceived negatively by the ideologists of the new system. Discussing the project of the "Northern Joint-Stock Fisheries Company", they noted the need to "paralyze the action of private capital in the North", for which purpose "to allocate funds for the purchase of the entire artisanal fishery. ...The budget of a handicraft industrialist (Pomor) is so small that, of course, if there is a demand for labor from the Society, he will willingly exchange shnyaka and yola for a trawler, herring and hunting steamships, where he will consider himself safer and real earnings will be much higher" [12, p. 89].

Wooden shipbuilding, taking into account the needs of the local population, remained in the European North of Russia for quite a long time, gradually acquiring more and more "ethnographic" and "museum" forms. "Motorboats", "kazankas" and other metal vessels have become more preferable both for fishing and for transporting passengers on any water bodies — along the sea coast and on small rivers and lakes.

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