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Strategic Development Priorities for the Karelian Arctic Region in the Context of the Russian Arctic Zone Economic Space Integration *

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Abstract. The Russian Arctic has been attracting a growing interest in terms of research and management. The former is due to the lack of knowledge about current processes in its development in the rapidly changing internal and external environments, and the latter is driven by the rising significance of this macroregion in ensuring the country's economic, ecological, geopolitical stability, and national security. Being interdependent, these interest spheres evidence the demand for the study of Arctic regions, especially newly established ones, and underlie its practical value, which consists in building the analytical foundations for working out and implementing the administrative mechanisms for socio-economic space integration in Arctic regions. Hence, the aim of this study is to define the strategic development priorities for the regional socio-economic system of the Karelian Arctic as a newly established region in the context of the multifarious Russian Arctic integration processes. This aim is achieved through the following tasks: analysis of the strengths and weaknesses of the socio-economic system of the Karelian Arctic, identification of key challenges and opportunities for its development, identification of the strategic priorities to overcome threats and realize opportunities. The principal methods were expert and in-depth interviews, SWOT analysis and content analysis, the dialectic method and system approach, which were applied in the context of the propositions of spatial economics. As a result of the study, characteristics of the Karelian Arctic's socio-economic system are identified in the context of the high-relevance problems of managing the development of the Arctic macroregion as a complex system. Directions for further research are defined, with the aim to build the scientific foundations for managing the spatial development of the Russian Arctic zone and its constituent regions and for handling the challenges hindering such development.

Keywords: Russian Arctic zone, economic space integration, Karelian Arctic, SWOT analysis, Arctic macroregion, flagship area, special economic regime

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Introduction

Ensuring the coherence of the Russian Arctic economic space and reducing the extreme development differentiation of its territories are the strategic tasks of the country in the northern dimension of its foreign and domestic policy. The implementation of these strategic objectives in the context of current challenges and risks represented by an increase in macroeconomic instability [1, Amiri H., pp. 7–11; 2, Li W., pp. 13–17], environmental threats [3, Postigo J.C., pp. 70–72; 4, Wu K.-J., Tseng M.-L., Ali M.H., Xue B., Chiu A.S.F., Fujii M., Xu M., Lan S., Ren M., Bin Y. pp. 6–12], an increase in climate change [5, Ravindran S., pp. 6–8; 6, Leksin V.N., Porfiriev B.N., p. 642] and challenges to social development [7, Badina S.V., pp. 4–7; 8, Fauzer V.V., Lytkina T.S., Smirnov A.V., p. 1378] of the macroregion determines the active development of public administration institutions in the Russian Arctic (AZRF), observed in the last decade. This process is inevitably connected both with the formalization of the very concept of the Arctic zone of Russia and its transformation into an independent object of management [9, Skufiyina T.P., p. 425], and with the definition of the spatial contours of the implementation of state measures for its development. In practice, one can see the linkage between the formats of economic development in the Arctic (for example, the program of “supporting development zones” [10, Smirnova O.O., Lipina S.A., Kudryashova E.V., Kreydenko T.F., Bogdanova Yu.N., pp. 151–154; 11, Lipina S.A., Cherepovitsyn A.E., Bocharova L.K., p. 31; 12, Dmitrieva T.E., Buryi O.V., p. 43], “special economic regime of the Russian Arctic” [13, Volkov A.D., p. 1399]) and changes in its contours, due to both the need for comprehensive coverage of regional socio-economic systems by program activities (systematic implementation of regulatory measures), and the interest of business entities and regional government in being included in these programs. The contours of Russia's Arctic zone and the territory of the development programs have thus already been changed three times by mid-2021: in 2017¹, 2019², and 2020³. The formal aspects of this expansion are striking: if the changes in the basic Decree of the President of the Russian Federation “On the land territories of the Arctic zone of the Russian Federation”⁴, to which all strategic documents for the development of the Russian Arctic refer, took place on the

¹ Ukaz Prezidenta Rossiyskoy Federatsii ot 27.06.2017 g. № 287 «O vnesenii izmeneniy v 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 June 27, 2017 No. 287 “On Amendments to Decree of the President of the Russian Federation of May 2, 2014 No. 296 “On Land Territories of the Arctic Zone of the Russian Federation”]. URL: <http://www.kremlin.ru/acts/bank/42021> (accessed 01 August 2021).

² Ukaz Prezidenta Rossiyskoy Federatsii ot 13.05.2019 № 220 "O vnesenii izmeneniy v 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 13, 2019 No. 220 "On Amendments to Decree of the President of the Russian Federation of May 2, 2014 No. 296 "On Land Territories of the Arctic Zone of the Russian Federation”]. URL: <http://kremlin.ru/acts/bank/44231> (accessed 01 August 2021).

³ Federal'nyy zakon ot 13.07.2020 № 193-FZ «O gosudarstvennoy podderzhke predprinimatel'skoy deyatel'nosti v Arkticheskoy zony Rossiyskoy Federatsii» [Federal Law No. 193-FZ of July 13, 2020 “On State Support for Entrepreneurial Activities in the Arctic Zone of the Russian Federation”]. URL: <http://publication.pravo.gov.ru/Document/View/0001202007130047> (accessed 01 August 2021).

⁴ Ukaz Prezidenta Rossiyskoy Federatsii ot 02.05.2014 g. № 296 «O sukhoputnykh territoriyakh Arkticheskoy zony Rossiyskoy Federatsii» [Decree of the President of the Russian Federation of 02.05.2014 No. 296 “On land territories of the Arctic zone of the Russian Federation”]. URL: <http://www.kremlin.ru/acts/bank/38377> (accessed 01 August 2021).

basis of climatic and hydrographic features of the territories, allowing them to be attributed to the Arctic zone, then within the framework of implementation of the Federal Law “On state support of entrepreneurial activities in the Arctic Zone of the Russian Federation” into the AZRF (albeit with the proviso — “in order to implement this Law” (Paragraph 2, Article 2 of the Law)), the territories were included in its zone of effect, and the economic and social development prevailed. The combination of this objective conditionality and economic feasibility in the implementation of measures for the AZRF socio-economic development is fully reflected in the process of the gradual formation of the Arctic Karelia region, which represents the object of this study.

Taking into account the format adopted by the state for uniting the economic space of the Russian Arctic through the implementation of “complex interrelated projects” (this issue is discussed in detail in [12, Dmitrieva T.E., Buriy O.V., p. 42]), a comprehensive analysis of the socio-economic and natural resource potentials of the newly formed regions of the Russian Arctic in the context of the search and justification of areas for enhancing interregional cooperation becomes relevant. It determines the purpose of this study — the definition of strategic priorities for the development of the regional socio-economic system of the Karelian Arctic in the context of complex processes of AZRF space integration. The tasks to be solved to achieve the goal of the study include the analysis of the strengths and weaknesses of the socio-economic system of the region, the identification of key challenges and opportunities for its development, the definition of strategic priorities aimed at overcoming threats and realizing opportunities.

Features of the object under study and approaches to its investigation

The analysis of the spatial aspects of the implementation of program measures for the development of the Russian Arctic is based on the traditions of the domestic school of spatial economics, one of the founders of which is the academician P.A. Minakir. The approach outlined by him in [14, p. 28; 15, p. 25] quite accurately reflects the trend of increasing complexity of socio-economic processes and management structures of the AZRF territory. According to P.A. Minakir, the actual modern challenges are the consideration of a spatially defined socio-economic system as a “matryoshka doll” with an infinite number of “nested” and interacting spatial socio-economic clusters (regions)” [15, p. 25].

The management structure corresponding to this principle is defined in the program of “supporting zones” for the Arctic development, the fate of which is currently unclear due to the disappearance of a direct mention of it in the updated state program “Socio-economic development of the Arctic zone of the Russian Federation”⁵. It represents, according to T.E. Dmitrieva, “project of projects” [12, p. 43], due to the interdependent nature of the implemented regional “anchor” initiatives, focused both on the development and addition of the infrastructure of the

⁵ Gosudarstvennaya programma «Sotsial'no-ekonomicheskoe razvitiye Arkticheskoy zony Rossiyskoy Federatsii»: utverzhdena Postanovleniem Pravitel'stva ot 30 marta 2021 goda № 484 [State program "Socio-economic development of the Arctic zone of the Russian Federation": approved by the Government Decree of March 30, 2021 No. 484]. URL: <http://government.ru/rugovclassifier/830/events/> (accessed 01 May 2021).

Arctic backbone — the Northern Sea Route, and on its operation in solving the problems of transporting manufactured products. However, the interdependent nature of ongoing projects for the AZRF development, designed to enhance the synergy effects of regional projects, has the potential to turn into a negative factor in their implementation in the context of current challenges and risks. Among the key risks and challenges we refer to the COVID-19 pandemic and the resulting decline in global economic activity [2, Li W., pp. 15–1816; 16 Bontempi E., Coccia M., p. 8], the failure of oil deals and the fall in the profitability of the development of Arctic oil and gas fields [17, Kozmenko S.Yu. from. pp. 27–29; 18, Norouzi N., Fani M., p. 12; 19, Fadeev A. M., Cherepovitsyn A.E., Larichkin F.D., p. 108], the growth of environmental risks [20, Samsonova I.V., Potravniy I.M., Pavlova M.B., Semenova L.A., p. 255], a decrease in consolidated budget revenues, etc. The lack of budgetary funds associated with their simultaneous action, as well as the lack of development of individual economic initiatives [21, Vetrova E.N., Bogachev V.F., p. 156] threaten to “scatter” the matryoshka “project of projects” and not only negate the positive systemic effects, but also drag down successful regional projects.

Obviously, these challenges are related to the forced transition of the federal center from the policy of integrating the Arctic spaces at the expense of costly and risky “anchor” projects to the formation of the AZRF special economic zone, unique in its scale not only for Russia, but also for the world practice. Despite the fact that the institutions of the special economic regime are still in their infancy, one can note a trend towards the transition to the current self-sufficiency of Arctic initiatives on a macroregional scale, linking their support measures to the Arctic Development Fund^{6,7}, formed on the basis of tax deductions from enterprises localized in the Russian Arctic.

Considering the integration of the Karelian Arctic region, formed for the first time, into these spatial development mechanisms, it is necessary to briefly describe its features as an object of study. Administratively, this region was established as a result of the successive inclusion of the northern municipalities of the Republic of Karelia into the Arctic zone of Russia:

- On July 27, 2017, the territories of the Belomorskiy municipal district, Loukhskiy municipal district and Kemskiy municipal district of the Republic of Karelia were included in the land territories of the AZRF⁸ (marked in blue in Fig. 1);

⁶ Rezidentam arkticheskoy zony predlagaetsya shirokiy spektr preferentsiy / Upravlenie press-sluzhby Glavy Respubliki Kareliya [Residents of the Arctic zone are offered a wide range of preferences / Office of the Press Service of the Head of the Republic of Karelia]. URL: <https://gov.karelia.ru/news/16-10-2020-rezidentam-arkticheskoy-zony-predlagayutsya-bolshie-preferentsii/> (accessed 01 August 2021).

⁷ Minvostokrazvitiya ozvuchilo prioritetye napravleniya raboty v Arktike / Press-sluzhba Minvostokrazvitiya RF [The Ministry for the Development of the Russian Far East announced the priority areas of work in the Arctic / Press Service of the Ministry for the Development of the Russian Far East]. URL: <https://minvr.ru/press-center/news/23921/> (accessed 01 August 2021).

⁸ Ukaz Prezidenta Rossiyskoy Federatsii ot 27.06.2017 g. № 287 O vnesenii izmeneniy v 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 June 27, 2017 No. 287 On Amendments to Decree of the President of the Russian Federation of May 2, 2014 No. 296 “On Land Territories of the Arctic Zone of the Russian Federation”]. URL: <http://www.kremlin.ru/acts/bank/42021> (accessed 01 August 2021).

- On July 13, 2020, the Kalevalskiy and Segezhskiy municipal districts and the city of Kostomuksha were included in the land territories of the Russian Arctic in the framework of the implementation of the relevant Federal Law⁹ (marked with hatching in Fig.1).

Relying on the objective socio-economic factors of dialectical development of spatially defined economic systems of the Arctic Karelia allocation, the region is allocated on the basis of the settlement system and economic relations caused by the historical continuity of the White Sea natural resources development and its watershed territories, which have promising strategic importance for ensuring coherence and “contraction” of economic space of priority geostrategic territory of the Arctic zone of Russia, the geostrategic territory bordering the countries of the European Union, and the territories of non-Arctic regions of Russia and limited by the Murmansk Oblast in the north, the White Sea in the east, the border with the EU¹⁰ in the west and non-Arctic municipalities of the Republic Karelia in the south. The specifics of the spatial location of the Arctic Karelia at the intersection of the most important geostrategic territories and the connection with the non-Arctic regions determine the special role of the region in ensuring the connectivity of the economic space of the North-West of Russia.

⁹ Federal'nyy zakon ot 13.07.2020 № 193-FZ «O gosudarstvennoy podderzhke predprinimatel'skoy deyatel'nosti v Ark-ticheskoy zone Rossiyskoy Federatsii» [Federal Law No. 193-FZ dated July 13, 2020 “On State Support for Entrepreneurship in the Arctic Zone of the Russian Federation”]. URL: <http://publication.pravo.gov.ru/Document/View/0001202007130047> (accessed 01 August 2021).

¹⁰ V sootvetstviy s polozheniyami Strategii prostranstvennogo razvitiya Rossiyskoy Federatsii na period do 2025 goda: utverzhdena rasporyazheniem Pravitel'stva Rossiyskoy Federatsii ot 13 fevralya 2019 g. № 207-r. Bank dokumentov ofitsial'nogo sayta Ministerstva ekonomicheskogo razvitiya Rossiyskoy Federatsii [In accordance with the provisions of the Strategy for the Spatial Development of the Russian Federation for the period up to 2025: approved by the Decree of the Government of the Russian Federation dated February 13, 2019 No. 207-r. Bank of documents of the official website of the Ministry of Economic Development of the Russian Federation]. URL: https://www.economy.gov.ru/material/dokumenty/rasporyazhenie_ot_13_fevralya_2019_g_207_r.html (accessed 01 August 2021).

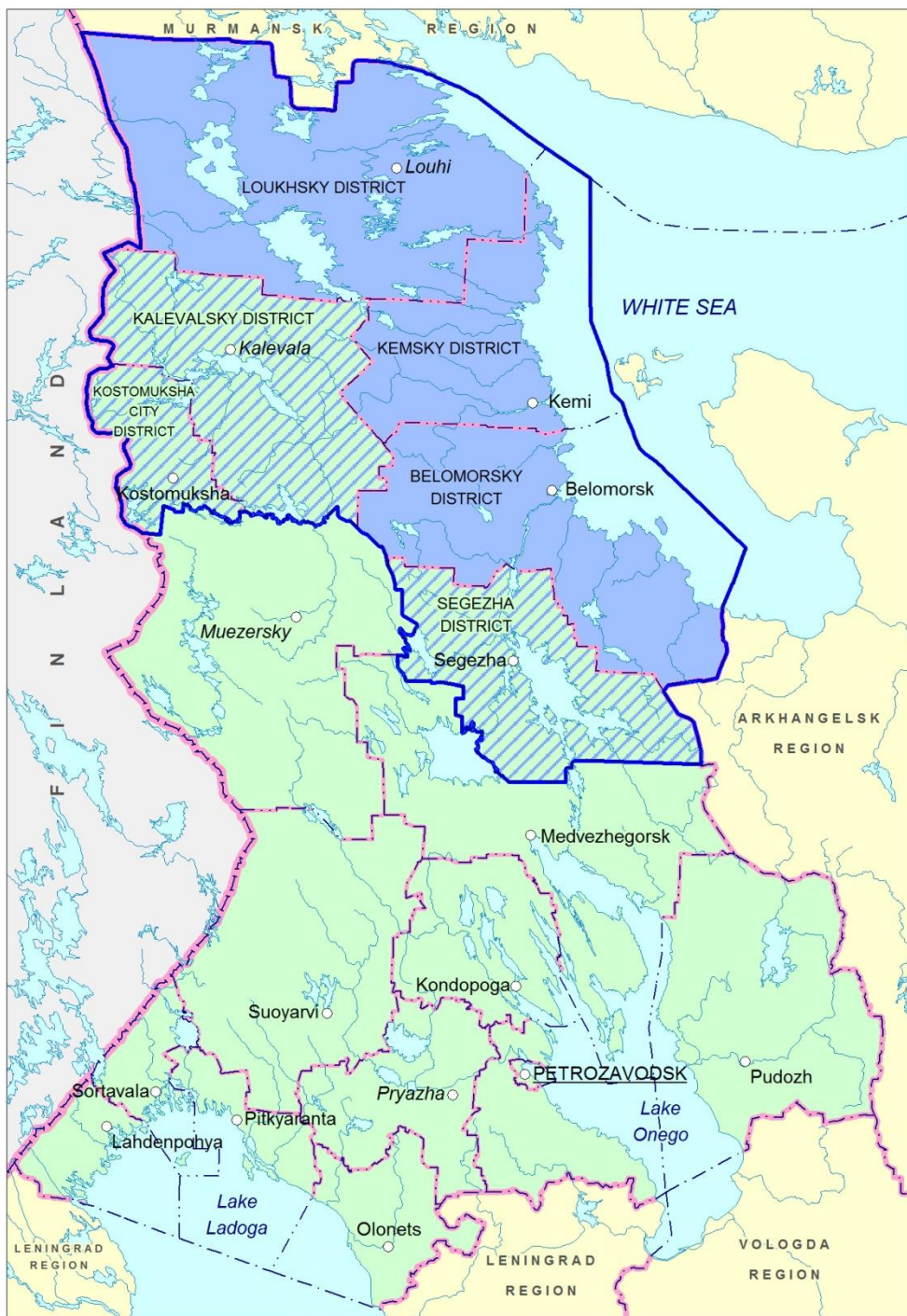


Fig. 1. The boundaries of the Karel'ian Arctic with the division of territories according to the time of their incorporation into the Russian Arctic.

The population of the Karel'ian Arctic as of January 1, 2020 amounted to 112.5 thousand people, distributed as follows by the municipalities that make up the region (Table 1). The settlement system of the region is characterized by the data in Table 1 and Table 2.

Table 1

Area and population size of the Karelian Arctic municipalities

	Area, km ²	Population, people	Number of inhabitants per 1 km ²	In the total population, %	
				urban	rural
Belomorskiy	12797	15433	1.2	59.6	40.4
Kemskiy	8029	14263	1.8	74.7	25.3
Loukhskiy	22552	10832	0.5	70.0	30.0
Segezhskiy	10723	35350	3.3	94.0	6.0
Kalevalskiy	13260	6563	0.5	58.3	41.7
*Kostomuksha	4046	30131	7.4	98.4	1.6
Total	71407	112572	1.6	83.6	16.4

Table 2

Settlements of the Karelian Arctic region and their distribution by municipalities

	Settlements and towns*, total	of them		Rural settlements in their composition, total
		urban	rural	
Belomorskiy	4	1	3	58
Kemskiy	4	1	3	18
Loukhskiy	7	3	4	27
Segezhskiy	6	2	4	34
Kalevalskiy	4	1	3	8
*Kostomuksha	1	0	0	6
Total	26	8	17	151

The industrial potential of the region, as well as the population distribution, is characterized by spatial unevenness, concentrating mainly in the cities of Segezha (Segezha district) and Kostomuksha (Kostomuksha urban district). The cities of Kem (Kemskiy district) and Belomorsk (Belomorskiy district) have practically lost their industrial significance at the moment, nevertheless, retaining their logistical and historical and cultural potential.

Materials and methods

As part of the implementation of the goal and objectives of this study, a complex of general and particular scientific approaches and methods was used, including, at the stage of compiling research tools — the dialectical method, the systematic approach; at the stage of collecting factual information — the method of expert and in-depth interviews; at the stage of data processing — the method of SWOT analysis, content analysis, the method of statistical analysis, the dialectical method and the systematic approach used in the context of the provisions of the spatial economy.

The information base of the study consisted of the data from the official publications of Rosstat and its territorial division in the Republic of Karelia, the results of inquiries to local self-governments (LSGs) of the Karelian Arctic regions and the Government of the Republic of Karelia, as well as data from in-depth and expert interviews with representatives of LSGs, private and state

enterprises, public organizations collected during the complex expeditions of July–September 2020.

The information base of the study, represented by qualitative and quantitative data, made it possible to solve its main tasks: analysis of strengths and weaknesses of the socio-economic system of the region, identification of key challenges and opportunities for its development, and determination of strategic priorities aimed at overcoming threats and realizing opportunities using the methodology SWOT analysis [22, Zonova A.V., Kislitsyna V.V., pp. 28–30]. The sample of experts was formed according to the following principle:

1) At the first stage, experts, representing different spheres of the socio-economic system, were interviewed:

- 6 enterprises reflecting the economic specialization of each district;
- 3 energy supply organizations and enterprises (one each in the fields of generation, distribution and supply of electricity);
- 6 public organizations working in the areas of environmental monitoring and education, social services and education;
- heads of subdivisions of 3 state enterprises and organizations in the field of fish farming, forestry and employment, as well as 3 specialists of district administrations in the field of housing and communal services.

Based on the information obtained during the first stage, a list of relevant factors of socio-economic development was determined.

2) At the second stage, 3 administration employees were interviewed in each of the six territorial subjects of the Karelian Arctic. The criterion for selection was the position occupied by the specialist — the Heads, their deputies responsible for solving socio-economic issues, and the heads of the regional departments of economic development were interviewed (total n=18, 3 interviewed specialists in each municipality of the Karelian Arctic).

At this stage, the significance and probability of occurrence of each factor were determined, while the experts could supplement their list.

Based on the results of these stages, SWOT analysis worksheets were compiled, an example of which is presented in table 3 and table 4.

Table 3

Strengths of the region

No.	Strength	Ability to use strength			Degree of influence on the activities of the region		
		high	medium	low	high	medium	low
1							
2							
3							

Table 4

Region's strengths matrix

Ability to use strength	Degree of influence on the activities of the region		
	High	Medium	Low
High			
Medium			
Low			

Subsequently, a SWOT analysis matrix was compiled based on a tabular representation of the strengths, weaknesses, threats and external opportunities for the development of the Karelian Arctic region. In this paper, the identified features of the socio-economic potential are described in more detail, based on both expert knowledge and empirical dependencies.

Results and discussion

At the first stage of the analysis, we determined the characteristics of the internal environment of the region, forming strong and weak components of its potential in the context of achieving the strategic goals of the AZRF development and the spatial development of Russia, defined in the relevant strategic documents — the Strategy for the socio-economic development of the Arctic zone of the Russian Federation up to 2035 and ensuring national security¹¹ and Spatial development strategy of the Russian Federation for the period up to 2025¹².

Among the **strengths** of the Karelian Arctic region, the experts identified the following:

- **high transport potential of the region** due to its geographical location between Finland, the regions of the Russian Arctic and the North-West of Russia, as well as the White Sea, which connects the Arctic Karelia with global sea transport routes and other AZRF regions. The availability of transport infrastructure, represented by the Kola highway and the railway connecting the Leningrad Oblast and the Murmansk Oblast, as well as the line connecting the Belomorskiy District and the Arkhangelsk Oblast, the White Sea-Baltic Canal, a number of mothballed military airfields and port infrastructure, forms the transit potential of the region as a “gateway” to the Russian Arctic and constitutes a promising logistical basis for its economic development (most pronounced in the Lokhskiy, Kemskiy, Belomorskiy and Segezhskiy regions);
- **significant natural resource potential**, represented by mineral resources in territories of varying degrees of development (the most pronounced in the Loukhskiy, Belomorskiy

¹¹ Strategiya sotsial'no-ekonomicheskogo razvitiya Arkticheskoy zony Rossiyskoy Federatsii do 2035 goda i obespecheniya natsional'noy bezopasnosti: utverzhdena Ukazom Prezidenta Rossiyskoy Federatsii ot 26.10.2020 goda № 645 [Strategy for socio-economic development of the Arctic zone of the Russian Federation up to 2035 and ensuring national security: approved by Decree of the President of the Russian Federation dated October 26, 2020 No. 645]. URL: <http://kremlin.ru/acts/bank/45972> (accessed 01 August 2021).

¹² Strategii prostranstvennogo razvitiya Rossiyskoy Federatsii na period do 2025 goda: utverzhdena rasporyazheniem Pravitel'stva Rossiyskoy Federatsii ot 13 fevralya 2019 g. № 207-r [Spatial development strategies of the Russian Federation for the period up to 2025: approved by the order of the Government of the Russian Federation dated February 13, 2019 No. 207-r]. URL: https://www.economy.gov.ru/material/dokumenty/rasporyazhenie_ot_13_fevralya_2019_g_207_r.html (accessed 01 August 2021).

districts and the city of Kostomuksha), and forest resources (the most pronounced in the Kalevalskiy and Segezhskiy districts), which, however, have been subjected to certain depletion due to long-term concentrated logging in the second half of the 20th century;

- **existing industrial capacities.** This applies primarily to the mining, pulp and paper, energy and fisheries industries. Despite the pronounced focus of economic activity, these centers, provided with infrastructure, form the supporting frame of the regional economy of the Karelian Arctic;
- **tourist and recreational potential,** allowing not only to develop various types of tourism: ethno-cultural, military-historical, religious, environmental, rural, industrial and event tourism, but also to form the basis of tourist routes to other regions of the Russian Arctic (the most pronounced in the Belomorskiy, Kemskiy, Loukhskiy, Kalevalskiy districts, and the city of Kostomuksha). An expert from the city of Kostomuksha characterizes the strengths and prospects of tourism development in the following way: *“The tourism potential, I would say, is quite high. The strong point is, first of all, logistics — proximity to the EU border — and the tourist flow that we have, I think, it may be increased due to, for example, the round-the-clock operation of the Lyutta border-crossing point. Now we have significantly improved the state of the Kochkoma road with the border, the traffic flow towards the border of Finland. I think it will be increased. That is, logistics is a strong point. The second one is the presence of protected areas, a nature reserve and a national park on the territory of the Kostomuksha urban district. The next point is the development of the hospitality industry itself, let us call it that, and the creation of new tourism or, rather, the construction of hotels, guest houses, catering facilities ... and, of course, industrial tourism”*;
- **aquaculture and mariculture potential,** based on significant water resources, including rivers, lakes and coastal waters of the White Sea, different both in chemical composition and temperature regime, as well as on existing capacities and experience in rainbow trout and mussels farming (expressed in all municipalities of the Karelian Arctic);
- **geostrategic location** at the intersection of the priority geostrategic territories of the Russian Arctic and the geostrategic territory bordering the EU, as well as the existing access to the White Sea and the oceans. The importance of the Arctic Karelia region for strengthening the defense capability and ensuring the national security of the country is increasing in the context of growing international tension and intensifying processes of rapprochement between Finland and NATO [23, Kilin Yu.M., p. 67]. The economic and social effect of strengthening the military presence in the Arctic Karelia can be achieved both through the use of dual defense and economic technologies, and through a local increase in demand in local markets from the military;
- **bioresource potential** of the White Sea basin is represented by economically valuable fish species (herring, saffron cod, pikeperch and others), as well as various types of algae

(fucus, kelp and others), exploited by local enterprises within the internal production cycle or in cooperation with enterprises from other AZRF and Russian regions (the most pronounced in Loukhskiy, Kemskiy, Belomorskiy regions and Kostomuksha city);

- **energy potential** based both on the existing generation capacities — HPP cascades, and on the capacities released due to the closure of a number of enterprises with an energy-intensive technological cycle (the most pronounced in the Belomorskiy, Kemskiy and Segezhskiy districts);
- **vacant production sites** for investment projects within existing and new enterprises, which could be considered as potential Greenfield and Brownfield sites. In addition to the two existing ASEZs in Kostomuksha municipality and the Nadvoitsy settlement in Segezha municipal district, there is a significant amount of free land of varying degrees of development and infrastructure provision in Arctic Karelia.

Weaknesses of the Arctic Karelia region:

- **disproportions in the structure of labor resources** in the region. All municipalities are already experiencing an acute shortage of specialists in the production sector, the social sphere and municipal management. At the same time, the majority of qualified specialists working today in the forestry sector (Lukhskiy, Segezhskiy, Kalevalskiy districts), the mining industry (Loukhskiy district), the fishery industry (Belomorskiy district), the education sector of all municipalities are pensioners, which jeopardizes the prospects for functioning enterprises in the medium and long term. At the same time, this problem is absent in the Kostomuksha city. The aging trend is aggravated by the outflow of qualified workers and young people outside the region. An expert from the city of Segezha characterizes the current situation in the following way using the example of the Segezha district: Respondent: *“All the personnel that were there, they have grown, let us say, retired safely or left somewhere. Part of the organizations that trained, for example, paper machine engineers, operators, all these professions, do not teach in the city of Segezha anymore, that is, people only study directly at the enterprise, therefore there is a shortage of personnel. Inviting people from somewhere, workers from other cities, is an option, but this exasperates the local population, although no one wants to study here, to raise their level. I have already given an example that the PPM organized groups, tried to train people there in order to attract specialists to their enterprise, to train them for the mill so that they work there Somehow it did not work out very well. And there were problems with the group, with the people they trained. They were employed, but then they all left. Therefore, personnel shortage is a top priority”*;
- **difficulties in resolving land issues**, associated either with a local shortage of land (Kostomuksha city) or with an acute problem of determining land ownership and its status, as well as the status of buildings and infrastructure, often dating back to the Soviet

period (typical for all municipal districts), which is the strongest obstacle to the organization of new industries and the expansion of old ones;

- **extremely uneven distribution of the population, industrial potential and infrastructure**, due to the focal-dispersed nature of the development of economic space. Socio-economic development of the Arctic Karelia region is characterized by trends of polarization and concentration of economic activity mainly in Kostomuksha, Segezha, to a lesser extent in Belomorsk and Kem, with significant degradation of the rural areas of all districts, as well as the extreme economic sparseness of the Loukhskiy and Kalevalskiy districts;
- **uncertainty of residents and companies in the region's future and the expediency of investing in business development and life improvement**. This circumstance is observed against the background of long-term negative socio-economic trends in most of the territories of Arctic Karelia and the lack of awareness of government measures for the development of the region; it leads to increased migration moods among the most active part of the population to regions with more stable business conditions. Describing this situation, an expert from the Kalevalskiy municipal district states: Respondent: *"I think that the northern regions have prospects, the only thing that is needed is, of course, some kind of push so that people gain confidence and believe that their district was, is and will be"*;
- **small number of active people and entrepreneurs, general inactivity of the population** due to the fact that negative economic conditions and social disorder caused the outflow of the most active, skilled and mobile part of the population for a long time. An expert from the city of Kem described this phenomenon as follows: *"So if for several decades, the personnel potential and, accordingly, entrepreneurs, ready to invest, to do something at their own risk, have been washed away. There are few of them left, to count on the fingers, we try to support them all, to help, to guide them. It is good that now these supportive measures have gone from the republic, but the practice of previous years is such that it was easier for people to work "in the shade", and they were "not visible", for example, in case of sea shipping. No one is officially registered because there are too many requirements and so on. The problem is to find good workers or entrepreneurs who work in "white"; we have funds to support them, but we can't find them all, the economic department invites those, who have no documents, who have everything drawn up "crooked", so that they cannot show their expenses"*;
- **high heating and electricity costs**, which are typical for both business entities and local residents (according to the expert assessment of the Heads of municipal districts, residents' expenses for heating are on average 2 times higher than the respective costs in South Karelia), due to both the extremely deteriorated communal infrastructure and the use of costly technologies and resources (mainly coal, fuel oil);

- **disproportions in the regional energy system**, manifested in the presence of diversified energy capacities in a number of regions (Kemskiy, Segezhskiy districts), a shortage of energy resources and related significant restrictions in the implementation of investment projects (city of Kostomuksha), low stability of the energy system in the presence of free capacities (part of the territory Loukhskiy district and Kalevalskiy district), due to the non-rounded local energy system and vast territories. The latter also represents a significant deterrent to the development of investment activity, since it does not allow ensuring the technological needs of enterprises in a stable energy supply. This is how the current situation is characterized by an expert from the Kostomuksha city: Respondent: *“First of all, it is necessary to resolve the issue of gasification and a sufficient increase in electrical capacity. These are very bottlenecks at the moment. When gas will appear in the city, perhaps, there will be the construction of a thermal power plant with generation, free electric capacities will appear, and then any type of production can be developed. Now, there are restrictions for the industry. In other words, construction of big companies, where large energy consumption is expected, is, unfortunately, a big question right now”*;
- **depreciation and moral obsolescence of the infrastructure of housing and communal services and heating networks** remains an urgent problem for all municipalities, except for the Kostomuksha city. Despite the intensification of work on the modernization of communal infrastructure, most settlements lack sewage treatment facilities, while heating mains and water supply networks are prone to accidents due to extreme wear and tear. The situation is reflected in the comment of an expert from the Kalevalskiy municipal district: Respondent: *“Heat supply is exactly the same (as electricity supply — Interviewer's note) on those boilers and those networks, which were probably built back in the Soviet times. And only thanks to those people who work in these industries, it exists and operates”*;
- **pollution of water bodies and growth of social tension in the areas where aquaculture farms, primarily trout farms, are located**;
- **pollution of water bodies with fodder and waste products of cage trout** causes significant environmental damage in cases where rearing volumes exceed the natural ability of local ecosystems to regenerate, fixed in scientifically based limits on the capacity of fish farms. The situation is aggravated by the low subject study of the water bodies of the Arctic Karelia, as well as by exceeding the allowable cultivation limits. These circumstances are reflected in the following comments of an expert from the Kalevalskiy region: Interviewer: *“Are there any problematic points for trout farms that hinder development?”* Respondent: *“Well, the population continues to protest. Last year, “Kala ya maryapoyat” (one of the largest fishery enterprises in the Republic of Karelia — Interviewer's note) was supposed to set up cages near the village of Unitsa on Verkhneye Kui-*

to lake. But, unfortunately, the population was categorically against it, and therefore, everything is in a standstill. Entrepreneurs did not want to go to the territory where they would be met that way”;

- **limited budgets of municipal districts.** The predominant role of federal programs in the implementation of territorial development measures and the poverty of local municipal budgets lead to limited opportunities for targeted managerial influence on bottlenecks in the development of the region;
- **lack of accommodation for tourists, lack of modern tourism infrastructure.** The problem is typical for all the districts and the city of Kostomuksha to some extent, a separate problem is the lack of elasticity of the provided tourist services, for example, in the hotel business and accommodation facilities, and pronounced seasonality, which hinder their development. This is how an expert from the Kemskiy district characterizes this problem: Respondent: *“At this stage, the means of accommodation are a weak point, i.e. it is especially felt when the flow of tourists has started, all our hotels are busy, there are no free places, and of course travel agencies plan their route so that people arrive from the train, transfer to the boat, go to Solovki, have a tour on the boat, go back to the train, and leave. They don't stay here very long because there are no facilities and our infrastructure is involved as much as it is, but there is no elasticity. For example, there is no possibility to increase the number of beds fivefold during the season and then to close for the winter. Some hotels do that and work only in summer, but this fund is still not enough. There is no elasticity in the sense that there are plans to make use of this potential in winter, as the tourist season is only in summer. For example, to organize inter-republican skiing cup stages, on skis, on dogs, do something that can fill this unused potential in winter. But we have no opportunity to do it; people have houses made only for summer. In winter, they cannot be heated or populated, they are not adapted to this. Therefore, the lack of elasticity is a weak point”*;
- **degradation of port infrastructure, a small number of fishing enterprises own vessels** and the need to rent them increase the costs and risks of doing business, limit both the development of onshore processing and the further development of the fleet. This problem is typical for the Belomorskiy, Kemskiy and Loukhskiy districts. An expert from the Kemskiy district characterizes the current situation as follows: Respondent: *“Two companies addressed to us: “We want to collect, wash, prepare algae here, but there is no infrastructure”. They collected something, loaded it, but we took a trial batch, we collected it this year, it will be ready next year. Water areas are distributed to them, they collect algae there, they tried it, they looked at it, the quality of the algae suited them, they are satisfied, they will continue to develop. But they want to have a port infrastructure. Unfortunately, we do not have a port infrastructure”*;

- **poor development of auxiliary industries serving trout farms (production of fodder, genetic material, cages, etc.)** on the territory of Arctic Karelia and neighbouring regions. Currently, quality feed and genetic material are purchased mainly in Norway, which not only makes the production process more expensive, but also makes it less resistant to macroeconomic shocks and exchange rate fluctuations;
- **shortage of teachers, doctors, social service resources and related infrastructure**, which is especially typical for rural areas of all municipal districts that make up Arctic Karelia. This trend is most pronounced in the Loukhskiy and Kalevalskiy districts;
- **severe climatic and geological conditions**, characterized by a short frost-free period (80–110 days, depending on the region), an annual period with temperatures above 10°C of 75–100 days (depending on the region) and, accordingly, the sum of average daily air temperatures above 10°C — 1000–1400°C [24, Shegelman], the depth of soil freezing and difficult soils significantly increase the costs of construction and operation of industrial and residential facilities, business activities and human comfort.

At the second stage of the SWOT analysis, we considered the opportunities for the development of the Karelian Arctic region — environmental factors that are not directly dependent on the object of study, but can have a positive impact on economic processes, create prerequisites for overcoming negative trends and threats to the development of the region.

Opportunities of the Arctic Karelia region:

- **implementation of the special economic regime of the Russian Arctic** in the conditions of extremely limited municipal budgets will create a favorable environment for attracting investments and securing labor resources in the Karelian Arctic. Achieving the maximum effect requires coordinated and flexible work of all levels of government in creating optimal tax conditions, attractive investment sites such as Greenfield and Brownfield, and supporting the formation of industrial, tourism and fisheries clusters. Special attention should be paid to joint projects of enterprises from the Arctic regions, which will increase the connectivity of the economic space of the Russian Arctic;
- **activation of economic relations between enterprises of the Arctic regions** within the framework of the implementation of state programs for the development of the Russian Arctic, in particular the program of “**Development of supporting zones**” will enable the formation of value-added chains generated in single production cycles as part of taking advantages of spatial location in the territory of the Russian Arctic. The joint implementation of these state programs with a special AZRF economic regime will make it possible to intensify investment processes within the framework of interregional economic relations;
- **growth of the recreational attractiveness of the Karelian Arctic** is due to both increased consumer awareness and the development of tourism infrastructure in the region, a

separate area of activation of this area is the development and promotion of Arctic tourist routes and products;

- **implementation of natural gas supply projects** is a means of reducing heating costs for enterprises and residents, as well as solving local problems with energy shortages (typical, in particular, for the Kostomuksha municipality). The high probability of developing these projects (primarily the Volkhov-Segezha-Kostomuksha gas pipeline) is due to the interest of the corporate structures of JSC Karelskiy Okatysh (part of the Severstal Group), while it is constrained not only by high investments and long payback period of the gas pipeline, but also difficulties in maintaining the route in the conditions of its great length, low population density and lack of qualified personnel;
- **development of the White Sea–Baltic Canal**, which links Arctic Karelia with the ports of the White, Baltic, Barents, Black, Azov and Caspian seas, will significantly reduce costs when transporting goods (the route from Arkhangelsk to St. Petersburg, bypassing the Scandinavian Peninsula, is 3900 km longer) and thus increase the production and export potential of the Arctic regions. For the full realization of this potential, it is necessary to expand the dimensions of the Canal to the extent that allows vessels with a deadweight of 8000 tons to pass through it without hindrance [25, Tishkov S.V., Shcherbak A.P., Pakhomova A.A., Karginova-Gubinova V.V., Volkov A.D., p. 40];
- **growth in demand for products of mining enterprises**, primarily non-metallic construction materials (crushed stone, facing stone, stone blocks), due to the intensification of infrastructure projects both in the Russian Arctic and in the Leningrad Region, St. Petersburg and Moscow;
- **growth in demand for products of aquaculture and mariculture enterprises** in the domestic and foreign markets, as well as the lack of significant competition from producers from other regions in the cultivation and sale of rainbow trout and mussels, makes it possible to increase the volume of aquaculture with guaranteed sales;
- **development of the Belkomur infrastructure project**, the updating of which is determined in accordance with the NSR infrastructure development plan for the period up to 2035¹³. This project will make it possible to intensify the work of the Belomorsk–Obozerskaya railway section, and to continue the unfinished construction of the railway linking Finland, the West Karelian and Murmansk railways, the ports of Belomorsk and Belkomur, which stopped at the Kochkoma–Ledmozero section. Implementation of even some of these infrastructure projects will increase the transit potential of Arctic Karelia, with the prospect of creating a multimodal transport hub at Belomorsk;

¹³ Plan razvitiya infrastruktury SMP na period do 2035 goda. Utverzhden rasporyazheniem Pravitel'stva Rossiyskoy Federatsii ot 21 dekabrya 2019 goda № 3120-r [NSR infrastructure development plan for the period up to 2035. Approved by Decree of the Government of the Russian Federation dated December 21, 2019 No. 3120-r]. URL: <http://publication.pravo.gov.ru/Document/View/0001201912300038> (accessed 01 August 2021).

- **implementation of state programs for the development of communal infrastructure** and improvement of energy efficiency in municipal and state funds have now made it possible to achieve positive trends in these areas, as noted by respondents in all municipalities;
- **extension of the state programs “Zemskiy doctor” and “Zemskiy teacher”**, as well as education of the disabled, pre-pensioners and other socially vulnerable groups of population will create more favorable living conditions, securing and attracting labor resources.

Threats to the Arctic Karelia region:

1. **curtailment of the development programs of the Russian Arctic, in particular, the program “Development of supporting zones”**, is a possible consequence of the decline in revenues of the Federal budget of Russia, observed in recent years. In the absence of federal support, local and regional budgets will be extremely limited in creating investment conditions, and regional development will follow an inertial path, potential economic ties between the regions of the Russian Arctic will not be realized or will be weakly expressed;
2. **restrictions in the implementation of the special economic regime of the Russian Arctic**. In the absence of support from macro-regional institutions, local and regional budgets will be extremely limited in creating investment conditions, and the development of the region will follow an inertial path with a gradual decline in economic activity;
3. **increased competition for skilled labor from economic centers external to the Karelian Arctic** — Moscow, St. Petersburg and abroad — stimulates a further outflow of human capital and its narrowed reproduction in the region. At present, the majority of small and medium-sized enterprises of mining, forestry and fishing specialization have qualified personnel represented by workers of pre-retirement and retirement age, which will lead to an acute shortage of qualified workforce in the region in the next 10-15 years if there is no replacement of personnel;
4. **external global shocks** caused by the COVID-19 pandemic, growing geopolitical tensions, sanctions pressure and deterioration of macroeconomic parameters of the environment provoke economic instability, significantly narrowing the purchasing power of the population and the capacity of local markets, which can become a critical factor for small and medium-sized businesses focused on primarily local markets;
5. **degradation of the settlement system**, caused by the effects of attracting labor and capital to growth poles outside the Karelian Arctic region, and exacerbated by an internal decrease in the connectivity of the economic space due to the long-term destruction of transport infrastructure, the decline of socially necessary services in the territory. The consequences of this trend will lead to an aggravation of the sparseness of the economic space of the Karelian Arctic and an increase in the operating costs of enterprises;

- 6. **growth of tariffs for the services of natural monopolies**, which threatens to increase the costs for enterprises and households;
- 7. **curtailment or limited implementation of state programs of sectoral and social orientation** will lead to further degradation of social and communal infrastructure.

At the next stage of the analysis, we have identified the most significant factors influencing the socio-economic and spatial development of the Karelian Arctic region. Systematization and generalization of the previously identified factors in the SWOT analysis matrix allows us to answer the questions “How to use strengths to get the effect of existing opportunities?”, “What weaknesses hinder the implementation of opportunities?”, “How to use strengths to overcome emerging threats?” and “What weaknesses exacerbate existing threats, increasing risks for the region?” and identify cause-and-effect relationships that unite various groups of factors [22, Zonova A.V., Kislitsyna V.V., p. 32].

Table 6

Matrix of SWOT-analysis of the Karelian Arctic region

Internal environment External environment	Strengths (No. in order of listing)	Weaknesses (No. in order of listing)
Opportunities (No. in order of listing)	Opportunities + Strengths 1 – 1,2,3,4,5,7,8,9 2 – 1,2,3,4,5,6,7,8,9 3 – 1,4,7,8 4 – 1,2,3,4,5,6,7,8,9 5 – 1,2,3,5,6,7,8,9 6 – 1,2,8,9 7 – 1,3,5,7,8,9 8 – 1,2,3,6,8,9 9 – 1,4,6,8 10 – 3	Opportunities → Weaknesses 1 – 1,2,3,4,5,6,7,8,9,12,13,15 2 – 1,2,4,5,6,8,9,11,12,13,15 3 – 1,2,4,5,6,9,11,12 4 – 1,3,8,10,15 5 – 1,12,15 6 – 1,2,3,4,6,7,12,15 7 – 1,2,3,6,9,12,13 8 – 1,2,3,4,5,6,12 9 – 1,2,3,6,8,10,15 10 – 1,3,8,9,14,15
Threats (No. in order of listing)	Strengths → Threats 1 – 1,2,4 2 – 1,2,4 3 – 1,2,3,4,7 4 – 1,2,4,5,7 5 – 1,2,4,5 6 – 4,5,7 7 – 1,2,4,5 8 – 1,2,5 9 – 1,2,4,5,6	Threats + Weaknesses 1 – 1,2,3,4,5,6,7,10,11,12,13,15 2 – 1,2,3,4,5,10,11,12,13,15 3 – 1,3,4,5,8,14,15 4 – 1,3,4,5,6,8,10,12,14,15 5 – 1,2,3,4,5,6,7,8,10,14,15 6 – 4,6,7,8,15 7 – 1,3,4,8,9,10,14,15

Conclusions about the relationship and significance of various factors of the external and internal environment in the development of the region are based on tables for assessing the strength of these factors and the likelihood of threats and the implementation of external opportunities, formed on the basis of the corresponding matrices of strengths and weaknesses, opportunities and threats. These analytical tools are presented in table 7 and table 8 on the example of the strengths of the Karelian Arctic region.

Table 7

Strengths of the region

No.	Strengths	Ability to use strength			Degree of influence on the activities of the region		
		high	medium	high	medium	high	medium
1	high transport potential	*			*		
2	significant natural resource potential		*		*		
3	existing industrial facilities		*		*		
4	tourist and recreational potential	*				*	
5	aquaculture and mariculture potential		*			*	
6	geostrategic position			*			*
7	bioresource potential of the White Sea basin			*			*
8	energy potential			*		*	
9	free production sites			*		*	

Table 8

Region's strengths matrix

Ability to use strength	Degree of influence on the activities of the region		
	High	Medium	Low
High	1	4	
Medium	2;3	5	
Low		8;9	6;7

The analysis reveals that the most significant strengths of the region are the following:

- high transport potential of the region;
- significant natural resource potential;
- existing industrial capacities;
- tourist and recreational potential.

Critical weaknesses that require special attention when determining the strategic priorities for the spatial development of the region:

- disproportions in the structure of labor resources in the region;
- complexity of solving land issues;
- extremely uneven distribution of population, industrial potential and infrastructure;
- uncertainty of residents and businesses in the future of the region and the expediency of investing in business development and life improvement.

The most significant opportunities of the external environment of the region:

- implementation of the special economic regime of the Russian Arctic;
- activation of economic relations between the enterprises of the Arctic regions, in particular within the framework of the implementation of the program "Development of supporting zones";
- growth of recreational attractiveness of the Karelian Arctic.

Threats that require increased attention in strategy development:

- curtailment of development programs of the Russian Arctic, in particular, the program “Development of supporting zones”;
- growth of competition for skilled labor from external economic centers in relation to the Karelian Arctic;
- external global shocks.

Based on the revealed features of the socio-economic system of the Karelian Arctic, it is possible to identify the strategic priorities for its development in the context of the complex projects implementation for the integration of the AZRF economic space:

- implementation of the region’s logistics potential in order to integrate the spaces of the geostrategic territory of the Arctic zone of Russia, the geostrategic territory bordering the EU countries and the territories of the non-Arctic regions of Russia;
- overcoming disproportions in the structure of the region’s labor resources and personnel shortages, which hinder not only the attraction of investments and the opening of new industries, but also the development of existing ones;
- integration of the Karelian Arctic region into the processes of implementing state mechanisms for uniting the space of the Russian Arctic — the program of “supporting zones” and the AZRF special economic regime aimed at stimulating economic ties between the Arctic regions, as well as between the Arctic and non-Arctic regions. The objective basis for the economic integration of the Karelian Arctic into the Arctic macroregion is its natural, transport, industrial, as well as tourist and recreational potential.

The expeditions revealed one of the peculiarities of the organization of fishery activities in the Karelian Arctic, which is more characteristic of the Louhskiy and Kemskiy districts: a significant part of the official indicators of fish catch and tax payments to local district budgets (agricultural tax), for example, up to 30% in Kemskiy district, is formed by the activities of a large enterprise registered in its territory, but actually having no production facilities and localization in the area, as well as not providing employment for the local population. A municipal government specialist describes this situation as follows: *“We have a large fishing enterprise, which is registered in the district, and they provide us with a good agricultural tax, which forms up to a third of our revenue part of the budget. Therefore, the local tax office can only care for them in every possible way, cherish and support them. I cannot say how much they are connected with the place of their registration. Agricultural tax comes from them, but I cannot say how many people from the local population work there. I don’t have these statistics, but I know for sure that we don’t have fish processing facilities on the shore. Agricultural vessels sail the seas and pay agricultural taxes, but there is no fish processing on the coast. Everything is unloaded somewhere in large ports, maybe processed there, but the local population here receives the same as in Moscow and in St. Petersburg through chain stores. Local fishermen, who are not engaged in large quotas, ocean-going vessels, provide some current need. So, one can always buy fresh fish from the store”.*

A similar situation is developing in the Louhskiy district, where, as the expert notes, fishing is practically not carried out at all, and the “registration” of an enterprise and the payment of taxes to the local budget is related only to the existing rules for granting fishing quotas, which are actually carried out in the more northern seas, closer to the developed port infrastructure of Murmansk and Arkhangelsk oblasts. Thus, official statistics do not reflect the current situation of the development of fishing activities and fish production in the Karelian Arctic, taking into account the data of enterprises “registered”, but not conducting economic activities in the White Sea.

Conclusion

The effective implementation of the state policy on the spatial development of the Arctic territories is complicated by both the extreme sparseness of its economic space and the inertia of the macroregion’s economic development that has historically developed in Russia under conditions of completely different external and internal social, economic, geopolitical and environmental realities. The expansion of the AZRF contours, justified primarily by the motives for the comprehensive integration of regional economic systems into its economic space, requires timely and adequate analytical support for the current management tasks. In its absence, the effectiveness of managing the macroregion as a complex multi-level and differentiated economic system will be critically limited by the lack of reliable and relevant knowledge about the management object and its structural elements.

The identification of strengths and weaknesses, challenges and external opportunities of the constituent regions is crucial for the development of managerial mechanisms for the spatial development of the Arctic zone of Russia. As the study showed, the most important strengths for the Karelian Arctic region included in the Russian Arctic for the first time are the high logistical potential of the region, located at the intersection of the geostrategic territories of the Russian Federation and non-Arctic regions, having the capacity to integrate these spaces, as well as significant natural resources, tourism potential and existing industrial centers that have the potential to increase the connectivity of both regional and macroregional economic space. The implementation of these strengths is limited by a combination of external threats represented by external shocks, increased competition for highly skilled labor and the risk of curtailing state development programs, and the existing weaknesses of the region: disproportions in the structure of the region’s labor resources and staff shortages, residents’ uncertainty about the future of their place of living, the complexity of solving land issues for investors and existing businesses. At the same time, the existing opportunities for the development of the region, currently represented by the implementation of state programs for the integration of the economic space of the Russian Arctic and the growth of the tourist attractiveness of the Karelian Arctic, obviously do not cover these weaknesses and risks. The strategic priorities of its development in the context of the implementation of complex projects for the integration of the AZRF economic space are determined by maximizing the use of the strengths and opportunities of the region and overcoming its weaknesses and po-

tential threats through the mechanisms of activation of natural, transport, industrial, as well as tourist and recreational potential, represented by a special economic regime and the system of “supporting zones”. The most important obstacle is the narrowed reproduction of the human capital of the Karelian Arctic.

The contribution of this study to the formation of scientific foundations for managing the spatial development of the Russian Arctic includes, firstly, filling the vacuum of knowledge about new Arctic regions that have not been previously studied in the context of current goals and tools for the development of the macroregion, and, secondly, obtaining relevant knowledge in the context of rapid changes in the external and internal environment and the “delay” of statistical data on its dynamics, and thirdly, identifying urgent problems of regional development that require further study.

Thus, more detailed analysis of the factors of socio-economic development determining the region's weaknesses and threats to its development, and first of all, disproportions in the structure of the region's labor resources, dynamics of human capital and migration moods of the population caused by the inability of its full and extended reproduction, takes on great importance.

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