Spatial Development of the Arctic Territories

Anatoly N. Silin[1]
Marina L. Belonozhko[2*]
Lidia N. Belonozhko[3]

1. Industrial University of Tyumen, Tyumen, Russian Federation.
2. Industrial University of Tyumen, Tyumen, Russian Federation.
3. Industrial University of Tyumen, Tyumen, Russian Federation.

*Corresponding Author. Email: belonozhko5215-1@murdoch.in

Abstract: The purpose of the study is to conduct a theoretical and methodological investigation of spatial development (as a category), including in the aspect of a certain territory, with the possibility of analysing indicators characterizing the spatial development of the Arctic territories and, within the framework of existing tendencies, determining the main directions for improving the spatial development of these territories. Within the framework of the study, a scientific approach was used, applying both general and special scientific methods, namely the method of systematization, theoretical generalization, and a comparison method using statistical analysis. The article studies the approaches to understanding such categories as space, territory, spatial and territorial development, analyses the spatial development of the Arctic territories as part of the study, allowing to identify further directions for the development of this territory. The applied value of the findings lies in the possibility of organizing a more efficient spatial development of individual territories, which is the key to the country's competitiveness and security in the future.

Keywords: economic space, Arctic territories, territorial development, development of space.

INTRODUCTION

Consideration of the issue of spatial development requires noting a substantial fact that had a significant impact on changes in the strategic planning system in the Russian Federation, which is the adoption of Federal Law No 172-ФЗ in 2014 (Federal Law “On Strategic ..., 2014). This law defined an innovative spatial development strategy regarding strategic planning documents. The spatial development strategy is quite interconnected with socio-economic strategies, acting as its territorial projection. However, the globalization and integration processes, taking place in the world, as well as the transition of the country's economic development to innovation, which has a social orientation, require a newer approach to spatial development. This will contribute to the creation of a framework of centres of economic growth, both territorial and regional, which, in turn, will be able to transmit innovative impulses of economic development to adjacent entities (having previously formed them). It will also contribute to the acceleration of development of the outlying territories and regions,

managing these processes factoring in the use of market mechanisms and market institutions.

Apart from all of the above, it is necessary to note that the issues of spatial development of territories and an increase in the efficiency of this development are most of all conditioned upon the economic growth, namely, the search for new mechanisms of stimulating this growth, which makes research in this direction particularly relevant. A more substantive study of this problem was provided by such factors as the current territorial gap, both social and technological. In addition, there is a weak cohesion of territories and an excessive polarization of space, both social and economic (Valentey et al., 2018). In this context, institutional conditions are created at the state level, based on the principles of non-depleting development, including on the fundamental and comprehensive development. All this happens with realization of the importance and necessity of spatial development of territories (Tatarkin et al., 2017). The main direction of national policy in the field of spatial development of territories should be the comprehensive disclosure of the potential of the territories, or rather the totality of potential, factoring in all the features: cultural, historical, geographical, environmental, socio-economic. The purpose of all this will be to create the conditions for self-realization of a person, and the most favourable conditions, including to identify competitive advantages. In this context, from the standpoint of spatial development, the Arctic territories are of considerable interest. However, at present, the development of the Arctic space is complicated by such factors as the cost of maintaining infrastructure, both social and transport, the cost of ensuring a quality standard of living for the population of this territory, desertification.

At the present stage, the spatial development of territories is in the center of attention of many researchers, being investigated in the works of such authors as: E.D. Baldin et al. (2019), T.E. Dmitrieva, O.V. Buryi (2019), V.N. Lazhentsev (2018), P.A. Minakir, A.P. Goryunov (2015), A.V. Suvorova (2019) and many others. From the theoretical and methodological standpoint, the subject matter was explored in the works of such authors as: S.D. Valentey et al. (2018), E.M. Bukhvald, A.V. Kalchugina (2019), A.I. Tatarkin (2017) and other authors. Studies of the spatial development of the Arctic territory are also of interest, and the work of such authors as: E.L. Andreeva (2017), A.G. Shelomentsev et al. (2018) and many other authors deserves special attention. However, it should be noted that the review of the specified authors regarding the development of the Arctic zone of Russia, both economic and social, reflects only part of a significant segment of research in this direction. And the problems of spatial development of the Arctic territories require more in-depth research. Accordingly, all of the above dictates the need for further investigation of the subject matter with the possibility of developing recommendations, directions for more efficient spatial development of these territories. The study of theoretical aspects, their expansion and addition of theoretical aspects regarding the understanding of the spatial development of territories allows to outline the theoretical significance of the study. The study of the spatial development of the Arctic territories is a complex process that requires the study of priority areas, which determines the practical significance.

Literature review

At the present stage, considerable attention has been paid to the spatial aspects of management, which is conditioned upon new legislative acts regarding the

transformation of territories, including transformational processes within the legal framework for the development of territories and planning for this development. Nevertheless, the matter of the "space" category has been considered by scientists for a long time. The origins of the aforementioned category go back to the ancient period, which accounts for two approaches to understanding space and characterizing its distinctive features. Basically, the emphasis is on the relationship of this category with matter, namely on the specifics of this relationship. We shall briefly consider the evolution of the understanding of the category of space. The atomistic concept, represented by Democritus and Epicurus, imagined space as a void, which should contain matter, but does not absolutely depend on it. As the relations of objects of the material world, or rather the result of these relations, Aristotle gave his own definition of the category of space, according to which space is matter. Substantial and relational concepts were formed as a result of rethinking the above positions. The former defined space as an independent entity, where the properties of this entity do not depend on the processes taking place in it. The latter concept was formed under the influence of the theory of relativity and the crisis of classical physics, and understood space as a set of relationships between the subjects acting in it, which makes space dependent on these relations (Samchenko, 2015).

Such a definition of space brings it closer to the concept of “environment”. In this situation, the reverse effect of both space on material objects and the influence of material objects on space occurs. And to the present, the process of determining the attributes of space cannot be considered complete. This is due to the fact that this term is quite multifaceted and complex, more and more new facets appear. The difficulty in understanding this definition is also explained by the fact that space is considered by various sciences: geography, physics, political science, economics, mathematics, sociology, cultural studies and many others. Each of these disciplines considers space only from a certain aspect, respectively, for each discipline it is acceptable to consider a certain type of space. This suggests referring to economic, informational, social, innovative, physical space, etc. However, space can often not be considered as an independent object of study, which is typical for practice-oriented research. In such situation, the main study is conducted on the spatial aspects of the processes in various fields, an example is the study of the development of the urban system within a certain space (Cortinovis et al., 2019), markets (Wang et al., 2019; Timiryanova et al., 2018), the development of the transport complex (Kii et al., 2016), the development of institutions (Kelejian et al., 2013).

Spatial development, its specificity must be studied factoring in the specificity of the economic space. In the 18th century, many researchers touched on the problems of its formation and transformation. A. Smith and D. Ricardo are considered the founders of the spatial organization of the economy, the first created the concept of absolute advantages, the second proposed a theory of comparative advantages. Considerable attention in the works of these researchers was given to the issue of resources in space, namely their location (Suvorova, 2019). The issue of understanding the essence of the economic space has been investigated by many researchers. It is worth mentioning F. Perroux, the French scientist who noted the relationship of the economic space and the force field in his studies, which differed in the level of tension in its different parts, and in which a significant amount of force, both centripetal and centrifugal, acts. That is, in simpler terms, this refers to the relationship between economic development and changes in space. The same idea was voiced both in the theory of clusters and in the

theory of industrial complexes. In this context, we can refer to the emergence of interest in the territorial aspects of managing, to their development and, accordingly, to a practically formed scientific base for research on the development of the economic space.

Conducted research on the understanding of space has led to the emergence of an approach wherein the convergence of the concepts of "environment" and "economic space" is noticed. An example is the statement of the author Yu.G. Lavrikova, noted in the work of E.L. Andreeva (2017): the economic space is understood as the territory on which business entities interact with respect to a certain environment (socio-economic), which, in turn, is formed through the mechanisms of economic regulation used in this territory. The authors T.E. Dmitrieva, O.V. Buryi (2019) are of the same opinion. In their understanding, the economic space is the environment wherein economic relations between business entities are carried out, the formation of this environment occurs under the influence of certain factors and under certain conditions. In this context, the relationship of understanding the category of economic space with territorial distribution (geographically defined place) is traced. The basis of the relationship is the effect exerted by the parameters of the territory on the specifics of the processes occurring within this territory and causing changes characteristic of the territory (within the framework of a certain activity). The presence of a wide array of interpretations of the "economic space" provides a more expanded and enriched understanding of the essence of this category, the disclosure of which is possible through complexity because of the versatility of this category. In this situation, the economic space can be represented as an environment that forms a system (socio-economic) and defines the features and variety of processes that occur within this environment. The territory is the basis of the uniqueness of the environment and serves as a physical basis. However, it is necessary to briefly consider the understanding of the category of "development". It can also be attributed to one of the fundamental categories. If we consider the general scientific interpretation, then development is understood as a transition from one qualitative structure to another, as a controlled and purposeful evolution, as well as a change of state. Depending on the science using this concept, its special content is acquired. An example is the understanding of development within the framework of the regional economy, where development is the (economic-geographical) process of transforming economic systems and their formation (Lazhentsev, 2018).

If we return to studies of the understanding of economic space, its essential features and aspects, we can argue that they provide a reasonable approach to the study of spatial development and its features. In general, spatial development can be represented as a set of actions, moreover, actions that have a certain organization regarding the management of relations and elements of territories, and also as a system, the main activity of which is to optimize changes in space (Badaraeva, 2015). According to V.N. Lazhentsev (2018), spatial development is a configurational change in the geographical area of a certain type of activity, its expansion or contraction. Quite often, the concepts of "spatial development" and "territorial development" are used as similar and interrelated, with the latter becoming more widespread. However, some authors share these concepts, as exemplified by V.N. Lazhentsev's (2018) comments, where territorial development is understood as an activity (economic-geographical), the main direction of which is the effective use of all potential, its balanced use (technical, natural-resource, human, material potential, etc.); territorial organization of the economy

(including resettlement of the population); rational distribution of productive forces. An understanding of spatial development is presented just above. Another example is the judgment of S.A. Tarhov considered in the work of A.V. Suvorova (2019), where the author interprets territorial development as a set of environmental, economic, and social transformations inherent in a particular territory. At the same time, spatial development is understood by the author as a change in structure. In this situation, it appears that territorial development is a broader concept and includes spatial development. However, if we consider the terms "territory" and "space", the first is rather narrower. And if we consider the categories of territorial development and the development of territories, the first is a multidimensional and rather complex process. Therefore, the scheme of the relationship of concepts can be represented as follows (Figure 1).

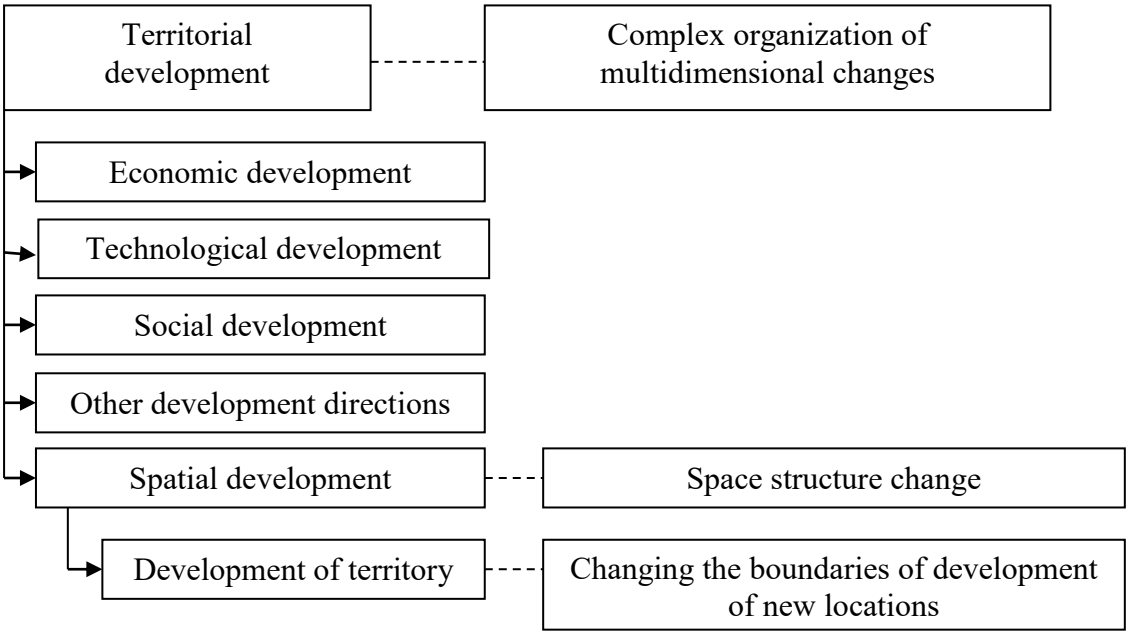


Figure 1. The interconnection of the categories "territorial development", "spatial development", "development of space" (Suvorova, 2019).

In this regard, spatial development is associated with a change in the structural characteristics of integrated territorial systems. This can be a change in the scope of activity of business entities that operate in the data space of territorial systems. According to the authors V.V. Markin, A.N. Silin (2019), we can distinguish the main subjects of space: population; groups of initiatives, both sociocultural and civic; business and power. The space for each subject is both a resource and a field of activity. Each subject is represented by their interests regarding the use of this space. If we project all of the above on Russia within the framework of the study, we can refer to the presence of significant spatial resources, given their multifaceted nature. In turn, this implies competition or cooperation of stakeholder groups in order to use space within the framework of safety, environmental friendliness and rationality, developing it to improve the quality of life of the population both in certain territories and in the country at large. Most likely, this is the meaning of the spatial development policy undertaken by the state. In this context, if we consider the Spatial Development Strategy of the Russian Federation, it should be noted that its main goal is to ensure balanced and, above all,

sustainable spatial development. It is necessary to emphasize the reorientation of the country's spatial development over the past thirty years towards resource extraction, with the use of inaccessible Arctic territories. At the same time, this is dictated by the need for uniform development of territories, which increases the level of national security and its competitiveness. In this regard, we shall consider which territories belong to the Arctic, and are the Arctic zone of Russia (Figure 2).

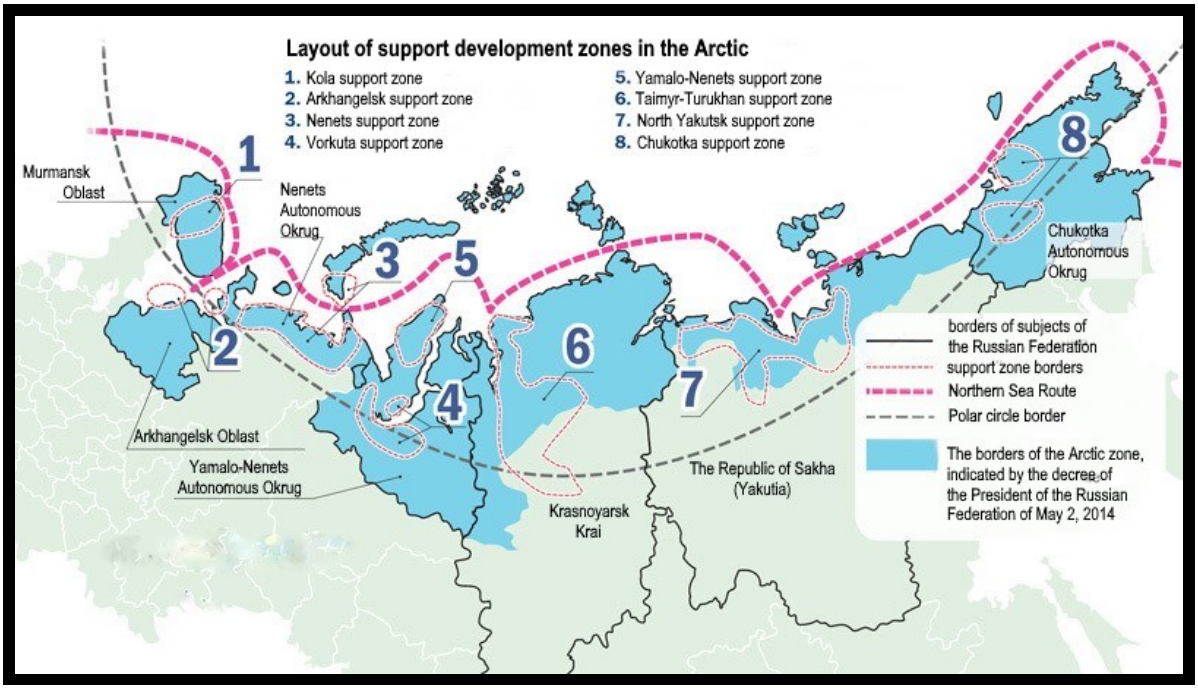


Figure 2. Arctic territory of the Russian Federation.

The composition of the Arctic zone of Russia is represented by the following territories:

– Parts of territories: Arkhangelsk Oblast (a number of municipalities included in it, including the city of Arkhangelsk); the territory of the Republic of Komi, represented by the municipality, the urban district of Vorkuta; the territory of the Krasnoyarsk Territory (the city of Norilsk, the Taimyr Dolgan-Nenets municipal district, as well as the Turukhansky district); the territory of the Republic of Sakha (Yakutia), more precisely, several northern uluses; part of the lands and islands of the Arctic Ocean.

– Whole territories: Murmansk Oblast; Yamalo-Nenets Autonomous Okrug (YaNAO); Chukotka Autonomous Okrug; Nenets Autonomous Okrug.

At the present stage, there is no certainty as to the international legal status of the Arctic. Part of the Arctic does not belong to any of the states, in particular the Arctic shelf, in contrast to the islands and land on the coast. The main contenders for this part of the Arctic territories are Russia, the USA, Denmark, Norway and Canada. At present, two approaches to determining the status of the Arctic territories can be identified. The first is the consideration of the Arctic territories as an open sea. The second considers the territory of the Arctic as the territory of adjacent countries, in connection with a significant part of the icy hard surface of the Arctic Ocean. The latter makes it possible to assert the existence of pre-emptive rights to the Arctic territories of the Arctic states due

to the geographical factor (location). In such case, the spatial restrictions are the country's coast (base) and meridians (side lines) from the North Pole to the eastern and western borders of the state. According to this approach, the determined area of the Arctic territories of the Russian Federation is 9 million km^2, the Arctic Ocean accounts for 6.8 m^2. It should be noted that the approach based on the sub-Arctic countries is not recognized by the applicable international legislation. In this regard, the UN Convention on the Law of the Sea can be mentioned, which was ratified by Russia in 1997 and according to which only the twelve-mile zone of coastal territorial waters can be covered by the full sovereignty of the coastal state, while the partial sovereignty with the sovereign right to develop resources by such a state extends to the two-hundred-mile zone (coastal). If Russia refuses such a division, it could lose 1.7 million km^2 of its sector of the Arctic territories. This Convention identifies rights to the continental shelf. The main bordering territories relative to the Arctic territories of Russia are Denmark, Canada, USA, Norway. The summary of the analysis of literary sources suggests that the spatial development of the Arctic territories can be represented as a territorial organization of the economy of its industries, with a corresponding population distribution and improvement of this settlement system, which will be based on the basic principles of efficient regional development within the framework of efficient national policy.

Methods

One of the main methods for studying the spatial development of the Arctic territories is the method of analysis of statistical data on certain groups of indicators characterizing both social and economic development. Lazhentsev (2018) has noted the effectiveness of research on spatial development based on the nested doll principle: the basis is the socio-economic development of the country as a whole, followed by development at the regional level, shifting to the study of the development of the territorial and, accordingly, spatial level. We would like to note that within the framework of the study of spatial development, with regard to economic systems, some authors use the technique of concentration of production. This methodology involves a distribution of the use of territorial resources, while the basis is formed by the balance distribution, which is conditioned upon specific production. Other authors, upon the study of spatial development with a focus on regional development, use interregional integration and economic zoning, based on the construction of both interregional and optimization intersectoral models. The ongoing research in this direction requires the use of a systematic approach to evaluating all the elements of spatial development of territories. This approach is also used in the study of territorial development regarding the natural resource potential of a particular territory, namely the use of reproduction. At the present stage, the information content of such areas as territorial planning, regional statistics, geographical expertise, geoinformatics, contributed to the improvement of the methodology for the implementation of scientific knowledge from a practical standpoint. This refers to a constant search for indicators that reflect spatial development, only a certain combination of which (including statistical indicators as the basis of the study) can reflect real processes. In this regard, within the framework of the study of the spatial development of the Arctic territories, it is proposed to analyse the following indicators:

– territorial features (in this situation, climatic conditions and the availability of resource potential are considered);

– indicators of population distribution within the Arctic territories (resident population, distribution by urban and rural territories; migration growth);

– indicators describing the economic development of the Arctic territories and social development in the aggregate (turnover of organizations, investments in fixed assets, and many others).

Using the proposed indicators, the identified changes will help determine favourable or unfavourable tendencies in the spatial development of territories. These indicators are studied factoring in the dynamics for a certain time interval (several years). The empirical base of research is represented by the Arctic territories as the main subject of research. The Arctic zone of the Russian Federation is the territory of the Arctic region, within which Russia has sovereign rights and jurisdiction. The composition of the Arctic zone of Russia, as already noted, is represented by the following territories: Arkhangelsk Oblast (a number of municipalities included in it, including the city of Arkhangelsk); territories of the Komi Republic, represented by the municipality, Vorkuta urban district; territories of the Krasnoyarsk Territory (the city of Norilsk, the Taimyr Dolgan-Nenets municipal district, including the Turukhansky district); territories of the Republic of Sakha (Yakutia), more precisely, several northern uluses; part of the lands and islands of the Arctic Ocean; Murmansk Oblast; Yamalo-Nenets Autonomous Okrug (YaNAO); Chukotka Autonomous Okrug; Nenets Autonomous Okrug. The total area of Russia's Arctic land is about 3 million km^2 (18% of the entire territory of the Russian Federation), including 2.2 million km^2 of land, where about 2.4 million people live. This is less than 2% of the population of Russia and about 40% of the total population of the entire Arctic. The main stages of the study of the problem are as follows:

– the study and analysis of the theoretical foundations of understanding spatial development, the methods for assessing the spatial development of a territory, the main approaches to understanding this category and assessments, the basis is formed by statistics on the Arctic territories;

– the second stage is represented by the study of selected indicators: their comparison and dynamics, the main period of 2016-2018.

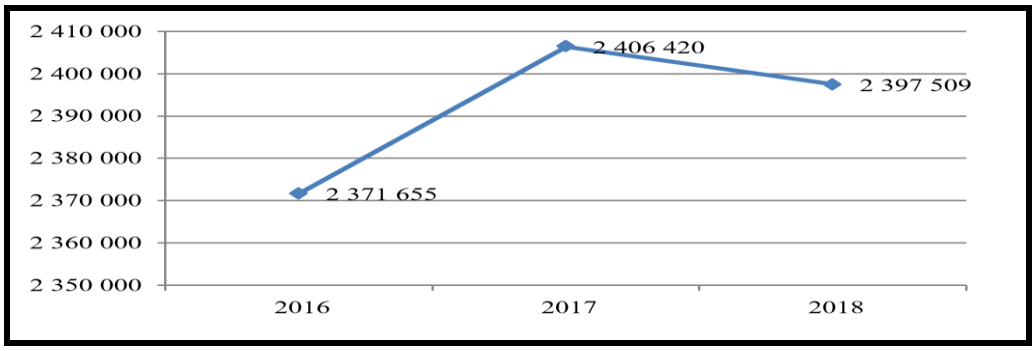
– third stage is generalization and conclusions regarding the spatial development of the Arctic territories, suggestions for improvement.

Results

The purpose of the study is the possibility of obtaining a general spatial development tendency of the Arctic territories. Analysis of statistical data allows to draw certain conclusions and build analytical graphs and tables. The specific nature of the Arctic territory is conditioned upon the average air temperatures of the summer months at a negative average annual temperature, the existence of glaciers and permafrost layers, the predominance of tundra vegetation and Arctic deserts. The sea ice cover is approximately 11 million km^2 in winter and approximately 8 million km^2 in summer. Due to the severity of the climate, only a small number of people live beyond

the Arctic Circle. Regions of the Russian Arctic are the area of transport and economic influence of the Northern Sea Route (NSR), advanced, as a rule, hundreds of kilometres deep into the mainland, depending on the configuration of the river network and other communication routes associated with existing and potential cargo flows. We shall consider the territorial features of the Arctic territories of Russia. Territories of the Arkhangelsk Oblast – the resource orientation is represented by the main production potential of the region: woodworking and pulp and paper industry, silver-containing lead-zinc deposits (Pavlovskoye deposit). Nenets Autonomous Okrug – hydrocarbon resources on the sea shelf and onshore of the Timan-Pechora oil and gas province. Oil and gas deposits. The Komi Republic (Municipal Formation of Vorkuta Urban District) is the only Arctic region of Russia that has no direct access to the Arctic Ocean. A large coal mining centre and the organizational and economic centre of the Pechora coal basin. Metallic minerals are represented by deposits and manifestations of ferrous, non-ferrous and noble metals. Of non-metallic minerals, the territory is especially rich in barite ores. Yamalo-Nenets Autonomous Okrug – the territory is positioned as a transit corridor providing communications between the industrial centres of the Urals and the oil and gas centres of Yamal with the European part of Russia. The region is rich in oil and gas deposits. Krasnoyarsk Territory (Taimyr Dolgan-Nenets Municipal District, Turukhansky District, Norilsk City District) – coal mining, oil and gas deposits. Existing oil and gas flows are tied to the system of trunk pipelines in a south-western direction outside the zone of influence of other Arctic territories. The northern uluses of the Republic of Sakha (Yakutia) – the basin approach, conditioned upon the lack of alternative inland water transport and full dependence on the northern delivery, can be considered a fundamental feature of the development of the territory. Exit to the Arctic Ocean. Anabar territory (diamond, rare-earth and oil and gas deposits), as well as the Zyryansky coal centre of the Kolyma territory. Chukotka Autonomous Okrug – the geographical advantages of direct access to the Pacific Ocean and the proximity of the markets of the Asia-Pacific region, a rich mineral resource base, including fishing. The Murmansk Oblast is an enterprise in the mineral raw materials, mining, metallurgical, and chemical sectors that are part of the largest national financial and industrial groups. An indisputable advantage is the presence of the warm-water Murmansk seaport and the base of the Russian icebreaking fleet. Developed fishing complex. One of the indicators of spatial development of territories is the population distribution. Whenever possible and data available, indicators will be considered in the context of the Arctic zone. The population dynamics of the entire Arctic territory is presented in Figure 3.

Figure 3. The dynamics of the resident population, people.



Source: compiled by the author based on the official statistics of the Federal State Statistics Service for the Arctic zone of the Russian Federation

In general, a decrease in the population of the Arctic territories as of 01.01.2019

can be noted. If earlier a decrease was observed in such territories of the Arctic zone as the Murmansk and Arkhangelsk Oblasts, but at the same time there was an increase in the total number, then for the reporting period there is an increase in territories where the number of permanent populations decreases. The dynamics of the resident population by the territory of the Arctic zone, factoring in the urban and rural population, is presented in Table 1.

Table 1. The permanent population of the Arctic territories, factoring in the urban and rural population, thousand people.

Indicators	As of 01.01.2017			As of 01.01.2018			As of 01.01.2019		
	Entire population	Urban population	Rural population	Entire population	Urban population	Rural population	Entire population	Urban population	Rural population
Arctic zone of the Russian Federation	2,371.6	2,118.1	253.5	2,406.4	2,139.6	266.8	2,397.5	2,132.2	265.3
Republic of Karelia	–	–	–	42.8	28.7	14.06	41.6	28.06	13.5
Komi Republic Vorkuta Urban District	80.06	79.59	0.5	77.3	76.8	0.5	74.7	74.3	0.44
The Republic of Sakha (Yakutia)	26.2	13.2	13.0	25.98	13.02	12.96	25.96	13.06	12.9
Krasnoyarsk Krai	227.22	205.49	21.73	227.97	206.35	21.63	228.94	207.56	21.38
Arkhangelsk Oblast	650.75	603.9	46.85	646.9	606.64	46.26	643.21	597.71	45.51
Nenets Autonomous Okrug	43.94	31.83	12.1	44.0	32.04	11.96	43.83	32.11	11.72
Murmansk Oblast	757.62	700.41	57.21	753.56	695.76	57.79	748.05	689.97	58.09
Chukotka Autonomous Okrug	49.82	34.89	14.93	49.35	34.79	14.55	49.66	35.19	14.47
YaNAO	536.05	448.82	87.23	538.55	451.4	87.14	541.48	454.25	87.22

Source: compiled by the author based on the official statistics of the Federal State Statistics Service for the Arctic zone of the Russian Federation

Territories of municipalities of the Republic of Karelia are included in the List of land territories of the Arctic zone of the Russian Federation by Decree of the President of the Russian Federation No 287 dated June 27, 2017. A decrease in the resident population is observed both among the urban and the rural population. The main territories of the Arctic zone where urban and rural populations are declining are: The Republic of Karelia, Vorkuta (Komi Republic), the Arkhangelsk Oblast and some others. Historically, a significant part of the population falls on territories that have a high level of both social and economic development. The pattern of population distribution in the Arctic territories displays that among the most developed territories are the Murmansk region, the territory of the Arkhangelsk Oblast, the Yamalo-Nenets Autonomous Okrug, and the territory of the Krasnoyarsk Krai. Another indicator of spatial development is

migration growth (Table 2).

Table 2. Migration population growth in the Arctic territories, factoring in immigrants and emigrants, people.

Indicators	2016			2017			2018		
	Number of immigrants	Number of emigrants	Migration gain	Number of immigrants	Number of emigrants	Migration gain	Number of immigrants	Number of emigrants	Migration gain
Arctic zone of the Russian Federation	121.11	135.131	-14.021	123.238	137.685	-14.447	126.622	138.957	-12.335
Republic of Karelia	–	–	–	1.769	2.439	-670	1.781	2.429	-648
Komi Republic Vorkuta Urban District	4.418	5.869	-1.451	3.413	6.267	-2.854	3.549	6.159	-2.610
The Republic of Sakha (Yakutia)	1.383	1.482	-99	1.329	1.668	-339	1449	1589	-140
Krasnoyarsk Krai	14.616	16.606	-1.990	15.537	16.277	-740	16.532	17.009	-477
Arkhangelsk Oblast	21.311	23.442	-2.131	21.744	25.011	-3.267	22.665	25.225	-2.560
Nenets Autonomous Okrug	2.137	2.457	-320	2.326	2.557	-231	2.422	2.814	-392
Murmansk Oblast	38.819	43.162	-4.343	39.913	43.416	-3.503	39.193	43.595	-4.402
Chukotka Autonomous Okrug	4.280	4.796	-516	4.370	5.026	-656	5.401	5.164	237
YaNAO	36.283	39.774	-3.491	35.163	37.581	-2.418	36.052	37.787	-1.735

Source: compiled by the author based on the official statistics of the Federal State Statistics Service for the Arctic zone of the Russian Federation.

In almost all territories, a negative value of migration growth is observed; in this situation, an outflow of the population occurs. An exception is the Chukotka Autonomous Okrug. The largest outflow of the population is observed in the Murmansk, Arkhangelsk Oblasts, Yamalo-Nenets Autonomous Okrug, including in the Komi Republic. It is precisely in the most developed territories of the Arctic zone of Russia that the outflow of the population occurs. Table 3 presents the general indicators of the Arctic territories describing their economic development. The increase in turnover of organizations in the reporting period is noteworthy. The same dynamics is observed in the number of people employed in these organizations; the dynamics of indicators suggests an increase in the economic activity of the territories. The dynamics of the indicators are confirmed by a decrease in the unemployment rate. A positive point is also the growth in retail sales, which increased by 5% compared to 2017. Negative

dynamics are taking place in investments in fixed assets, which contradicts the Russia-wide tendencies. The Yamalo-Nenets Autonomous Okrug had a negative impact on the dynamics of the indicator of investments in fixed assets. It was precisely this region that experienced a strong drop in this indicator in the reporting period (2018). It should be noted that the further development of transport infrastructure, which is reflected in the growth of the length of roads.

Table 3. Indicators of the Arctic territories describing their economic development.

Indicators	**2016**	**2017**	**2018**	**Growth rate**	
				2017	**2018**
Turnover of organizations, million roubles	4,764 495,00	5,570,764.70	6,919,015.20	16.92	24.20
The average number of employees of organizations, thousand people	no data	906.38	907.2	0.00	0.09
The average monthly salary of employees of organizations, roubles	no data	72,493.10	78,667.53	0.00	8.52
Unemployment rate, %	–	5.6	5.3	0.00	-5.36
Retail turnover, mln. roubles	509,725.2	537,216.8	565,630.5	5.39	5.29
Investments in fixed assets, million roubles	1,500 964,50	1,484,364.50	1,449,857.80	-1.11	-2.32
Investments in fixed assets aimed at protection and rational use of natural resources, mln. roubles	no data	25,962.20	26,103.90	0.00	0.55
Current expenses for environmental protection, million roubles	no data	32,132.90	32,281.20	0.00	0.46
The length of public roads of local importance, km	5,642.90	5,970.10	6,230.80	5.80	4.37
The total area of residential premises of land territories, thousand m^2	56,966	58,225.90	58,389.70	2.21	0.28

Source: compiled by the author based on the official statistics of the Federal State Statistics Service for the Arctic zone of the Russian Federation.

The dynamics of individual entrepreneurs operating in the Arctic territories can be represented as follows (Table 4).

Table 4. The number of individual entrepreneurs operating in the Arctic territories, people

Territories	**01.01.2017**	**01.01.2018**	**01.01.2019**	**Growth rate**	
				2017	**2018**
Total in the Arctic zone	64.039	64.047	64.137	0.01	0.14
Republic of Karelia	–	779	770	0.00	-1.16
Komi Republic	2.061	1.928	1.866	-6.45	-3.22

Nenets Autonomous Okrug	1.270	1.247	1.248	-1.81	0.08
Arkhangelsk Oblast	18.412	18.215	18.146	-1.07	-0.38
Murmansk Oblast	17.254	17.294	17.608	0.23	1.82
Yamal-Nenets Autonomous Okrug	16.967	16.502	16.422	-2.74	-0.48
Krasnoyarsk Krai	5.993	5.988	6.033	-0.08	0.75
The Republic of Sakha (Yakutia)	849	843	780	-0.71	-7.47
Chukotka Autonomous Okrug	1.233	1.251	1.264	1.46	1.04

Source: compiled by the author based on the official statistics of the Federal State Statistics Service for the Arctic zone of the Russian Federation

In general, an increase in the number of individual entrepreneurs can also be noted. The main growth occurred in the Murmansk Oblast, Krasnoyarsk Krai, Chukotka Autonomous Okrug. The specific gravity of science-intensive innovative goods can be considered as well, including works (services) of organizations in the total volume of goods shipped, work performed (services) (Table 5).

Table 5. The proportion of high-tech innovative products of organizations in the total volume of goods shipped in the Arctic territories

Territories	**2016**	**2017**	**2018**	**Growth rate**	
				2017	**2018**
Arctic zone of the Russian Federation - total	0.06	0.07	0.05	16.67	-28.57
Murmansk Oblast	0.42	0.43	0.38	2.38	-11.63
Chukotka Autonomous Okrug	0.04	0.37	0.07	825.00	-81.08
YaNAO	0.02	0.01	0.01	-50.00	0.00
Arkhangelsk Oblast without the autonomous okrug	0.40	0.44	0.51	10.00	15.91

Source: compiled by the author based on the official statistics of the Federal State Statistics Service for the Arctic zone of the Russian Federation

According to the data presented in the table, it is necessary to note a decrease in the proportion of science-intensive innovative goods in the total volume of goods shipped. Summarizing the results of the analysis, it was determined that there is an increase in the economic activity of the Arctic territories at large, but it is nevertheless necessary to note a significant differentiation of their development, which is conditioned upon the high economic and social concentration in certain territories. The main raw material orientation of the spatial development of the Arctic territories requires substantial financial investments for their development, which necessitates a constant investment. At the same time, the location of the Arctic territories of Russia allows to develop transport infrastructure, namely, the Northern Sea Route, logistics centres, which also requires significant costs. Currently, these territories cannot be deemed self-sufficient.

Discussion

In general, it should be noted that the spatial development of the Arctic territories still has a certain imbalance, however, all these territories have priority in their further planning and management and, accordingly, their further development. These territories are significant not only as raw materials, but are also important as a transport hub. In this regard, the position of D.A. Baldin et al. (2019) should be

mentioned. They indicate the intensification of the Northern Sea Route, providing accelerated cargo turnover between Europe and Southeast Asia, and the associated need for establishing and developing related infrastructure, reconstruction of existing seaports, fleet modernization, etc. In this situation, it is necessary to note the strategic importance of the development of maritime transport and, accordingly, the sea route. It is conditioned upon the need, with the active development of the fuel and energy industry complex and the mineral and raw material Arctic centres, to realize this potential, including the need to supply the population of the coastal territories of the Arctic Ocean with food, fuel, and more. The orientation of the spatial development of the Arctic territories demands substantial financial investments. At the same time, the location of the Arctic territories of Russia makes it possible to develop transport infrastructure, namely, the Northern Sea Route, logistics centres, which also requires significant costs. At the moment, these territories cannot be considered as self-sufficient. The spatial development of the territories of the Arctic zone, with regard to the transport field, is also supported by V.V. Kozlov, A.A. Mokosko (2019). In addition, a study of the issue of spatial development of the Arctic territories allowed to conclude that the basis for spatial development and further development will be the most developed territories of the Arctic, which have a high level of concentration of economic space. To reduce costs as the main factor slowing down the spatial development of the Arctic territories, an innovative factor will be used, through which costs can be reduced relative to the development of the Arctic zone. The same opinion is shared by the authors O.V. Gubina, A.A. Provorova (2018), who argue that in the future, the development of the Arctic space will be determined by the growing influence of the innovation factor, mainly due to an increase in the cost-effectiveness of innovation production, including an increase in the effect of the use of labour migrants.

It should be noted that the development of the Arctic territories should be gradual, not comprehensive, and the already existing base must be developed. Studies by author V.N. Lazhentsev (2018) on the subject of socio-economic space and territorial development indicated that political ambitions regarding the North, and especially the Arctic, are of positive importance provided that a sense of economic measure is observed. An excessive desire to conquer and master everything does not correspond to the real capabilities of the country. Furthermore, quite often, this should better be avoided. The author believes that the development of the economy of the northern and Arctic territories is currently in such a stage when a pause is needed to overcome the shortcomings caused by the “old” industrialization based on technologies of the 20th century. It is desirable to direct efforts towards establishing a technological, economic, environmental, social order in existing economic complexes, including reaching political agreements on a number of disputed Arctic territories and restoring defence potential. The issue of spatial development priorities for the Arctic territories is currently debatable and controversial, requiring a comprehensive approach. The author’s position lies in the fact that objective reality dictates the prior need for intensive study of issues related to the refinement of deficiencies in the development of the Arctic territories, and only subsequently investigate matters characterizing the priorities for the spatial development of the Arctic territories, mainly related to their mineral and raw material potential and transport significance, factoring in the opportunities at hand.

Conclusions

Processing a significant amount of scientific literature provided an understanding of the theoretical aspects of the spatial development of the territory, which lies in the territorial organization of the economy, more precisely its branches, with the corresponding population distribution and improvement of this settlement system, which will be based on the basic principles of efficient regional development within the framework of effective national policy. The methodology for studying the spatial development of the Arctic territories can be represented as a system of indicators, which reflect the territorial features (this includes climatic conditions, the availability of resource potential), as well as indicators of population distribution within the Arctic territories (resident population, distribution by urban and rural territories; migration growth); indicators characterizing the economic development of the Arctic territories and social development in the aggregate (turnover of organizations, investments in fixed assets, and many others). The result of the study was an analysis of the spatial development of the Arctic territories based on the selected indicators. The analysis demonstrated an increase in the economic activity of the Arctic territories, as evidenced by the indicators of organizations' turnover, including an increase in the number of entrepreneurs. However, it is nevertheless necessary to note a significant differentiation in the development of these territories, which is conditioned upon the high economic and social concentration in certain territories (the dynamics of population distribution, where its concentration in certain territories is visible, can also serve as confirmation). The main raw material orientation of the spatial development of the Arctic territories requires significant funding, which necessitates a constant investment. At the same time, the location of the Arctic territories of Russia allows to develop transport infrastructure, namely, the Northern Sea Route, logistics centres, which also requires significant costs. So far these territories cannot be deemed self-sufficient. The author's position on how to solve problems is as follows:

– First of all, it is necessary to study the shortcomings in the development of the Arctic territories. Here, the main efforts should be made regarding the establishment of a social, economic, technological order in these territories. The shortcomings of the "old" industrialization should be overcome.

– Based on the work done on the first issue, the development of infrastructure and, above all, the transport complex as a necessary element in the development of the mineral resources' potential of the Arctic territories, with a mandatory reliance on innovation so as to reduce the cost of developing territories.

– The development of the mineral potential, factoring in the already existing developments in the first two aspects.

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