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Issue Article

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FEATURES OF THE DEVELOPMENT OF CLOSED ADMINISTRATIVE-TERRITORIAL FORMATIONS (CATE) AND SUPPORT SETTLEMENTS (SNP) IN THE ARCTIC ZONE UNTIL 2035

Abstract: *The article analyzes a closed administrative-territorial entity (CATE) - this is an administrative-territorial entity created in order to ensure the safe functioning of organizations located on its territory that carry out the development, production, storage and disposal of weapons of mass destruction, processing of radioactive and other highly dangerous man-made substances the nature of materials, military and other facilities for which, in order to ensure the defense of the country and the security of the state, a special regime for the safe operation and protection of state secrets is established, including special living conditions for citizens and support settlements (SCP), on the basis of which the accelerated development of infrastructure is carried out. The entire territory of a closed administrative-territorial entity is the territory of a municipal entity with the status of an urban district, ensuring the implementation of guarantees in the field of education, the availability of medical care, cultural services and the implementation of other needs of the population of the territory of one or more municipal entities. The categories of support settlements follow from the definition of SNP and are divided into three main tasks solved during the activities of enterprises and organizations located in them, namely:*

ensuring the security of national informationresources of the Russian Federation from external threats, protection of the sovereignty of the Russian Federation, its independence and state integrity;

ensuring the protection of national interests from internal threats, ensuring the implementation of constitutional rights and freedoms of citizens, civil societyra and harmony in the country;

ensuring a decent quality and standard of living, socio-economic development of the country (including the role of bases for the development of geological exploration and mineral resources centers, implementation economic and (or) infrastructure projects in the Arctic).

These groups of tasks allow us to distinguish three fundamentals groups of support settlements (in accordance with the tasks performed by the ONP):

strategic SNP,

ENP for internal security,

SNP ensuring socio-economic timesVitya.

***Key words**: competitiveness, demand, quality, accessibility, innovation, digital technology, economic policy, industrial policy, union of federal, regional and municipal branches of government; profitability, profit, financial stability, stability, purchasing power.*

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Introduction

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As part of the research, we present the speech of the President of the Russian FederationV. Putin, namely: Dear colleagues, good evening!

We have already met some of them on first meeting. As for the second question for which we have gathered. Just now we are with you were at a large enterprise, which was commissioned and dedicated to the development of the Arctic - in the broad sense of the word. Yes, these are specific Arctic projects related to liquefied natural gas, but in general such projects are very important for the development of the Arctic zone as a whole - and for the country's economy, of course, I have already talked about this.

But the Arctic zone is important - and we have talked about this many times in relation to various situations - for the country strategically. There are defense issues, resource base, and so on, I won't list everything.

At the same time, big problems have accumulated here, which, of course, require our special attention. For example, let's say, the deterioration of communal infrastructure and housing stock even in large cities of the Arctic reaches 70 percent, and in small remote villages and so-called ZATOs, closed administrative territories, this problem is even more acute.

I would like to note in this regard that, thanks to certain decisions made earlier, over the past three years, of course, something has been done and progress has been made in resolving a number of issues. For example, apartment buildings are undergoing major renovations, courtyards and other public spaces are being spruced up, and new social facilities are appearing. Unfortunately, due to weather conditions, we did not get to Severomorsk; we wanted to get there by helicopter, but due to the weather it did not work out. But I know that a lyceum with 1,200 seats was built there, and in Zaozersk there is a sports and recreation complex with a swimming pool. In the military town of Sputnik - also here in the Murmansk region - a major renovation of a building with a library and a children's art school was carried out.

Nevertheless, the pace of work in terms of social development is clearly insufficient. It must be larger-scale and, of course, must be systematic. It is clear that the budgetary capabilities of the regions are limited. Moreover, the development tasks of a number of settlements are directly related to issues of national security and are of national importance. Therefore, a great responsibility here lies with the federal center.

Let me remind you that last year, at a meeting dedicated to the Arctic, we decided to develop an action plan for the development of housing, energy and social infrastructure in CATUs and settlements in the Arctic zone where our military units are stationed. However, the problem is still being solved, to put it mildly, slowly. Today, colleagues, I would like to talk to you about this, to talk about the reasons for the delay in deadlines.

I would also like to draw your attention to the fact that the improvement of cities in the harsh conditions of the North is connected with the solution of issues, as I have already said, of a defense nature. Now I will not go into details here, but in these areas we have many interests in the field of defense and security. Therefore, people who live in these conditions must live in human conditions, and special attention must be paid to this.

In this regard, I would like to emphasize once again: these issues are of fundamental importance. I won't go into details now, we just talked with the governor, and at one time we talked with the Minister about this. Let's take this very seriously.

At the end of our meeting, I will say a few words. And now I would like to give the floor to the governor. Please, Andrey Vladimirovich. A. Chibis: Dear Vladimir Vladimirovich! Dear Colleagues!

Firstly, you have already spoken about the military formations that are based in our country. We are proud that the Red Banner Order of Ushakov Northern Fleet is based in the Murmansk region. More than 80 percent of the entire Northern Fleet is located on the territory of our region, not counting other units of the Ministry of Defense of the Russian Federation.

Therefore, from the very beginning of my work as governor of the Murmansk region, attention to the settlements where military personnel and members of their families live has become the most important priority for the work of our entire team.

We have 27 settlements, including five ZATOs with military deployments, in which about 150 thousand people live with their families. And soon the number of residents of these cities and towns will increase significantly: these are sailors, submariners, marines, motorized riflemen, tank crews, pilots and many others. All of them fulfill their military duty with valor, defending their homeland, including as part of a special military operation.

Over the past four years, we have concentrated financial opportunities, resources - everything that is possible: both national projects and individual decisions of the Government on the renovation of CATUs in accordance with your instructions, Vladimir Vladimirovich, as well as the resources of the regional plan "Live in the North!" just for the development of these settlements. And taking into account the expenses of 2023, they invested almost 14 billion rubles, to be precise - 13.9 billion rubles, a third of which came from the federal budget.

Thanks to this, the first school in Severomorsk in 30 years was built, you just mentioned it in your opening speech, six kindergartens, eight outpatient clinics and first aid stations, 529 apartments, 199 houses and courtyards adjacent to more than 400 apartment buildings were renovated. Ten sports facilities and six cultural facilities were built and reconstructed, 26 public spaces were landscaped, more than 30 modern children's play and sports complexes were installed, and 105 kilometers of roads were repaired. And we renovated a school in Zaozersk, and we will complete three schools as part of a major overhaul this year. 25 empty capital construction projects have been demolished, which, of course, let's just say, simply disfigure these cities and towns. It is clear why they were formed, including taking into account the change in the number of troops at one time, when it was reduced.

I would especially like to express my gratitude for the support to Yuri Petrovich Trutnev and the Minister for the Development of the Far East and the Arctic Alexey Olegovich Chekunkov, thanks to whom we received additional funds as part of a single Arctic subsidy and began the construction of important facilities for military families - this is a school in Pechenga, a new building schools (the school, by the way, was awarded the title of Hero of the Russian Federation to Mikhail Popov, a participant in a special military operation; he is alive, continues to carry out tasks within the framework of the North Military District), a swimming pool in Severomorsk, a House of Culture in Alakurtti, and we are also installing 20 more sports and games in military garrisons complexes as part of the additional funding we received. This is what we all managed to do together in these territories, concentrating all possible resources, including with the support of the federal budget and, of course, thanks to your instructions in this regard. There is this movement. People really saw the changes, felt these changes, because since the 90s, frankly speaking, not much attention has been paid to these cities and towns.

But, taking into account, on the one hand, and this must be honestly admitted, the still deplorable state of a huge number of residential buildings in these settlements, social facilities, the critical deterioration of engineering infrastructure in a number of settlements, and on the other hand, the upcoming significant increase in the number of military personnel by our territory, a systemic decision is required on the comprehensive development of housing and infrastructure for our military and their families. In order to provide for new military personnel and their families, it is necessary to build 134 apartment buildings and 37 social and communal infrastructure facilities. These figures have been previously verified with our military colleagues. For these purposes, according to preliminary calculations, about 135 billion rubles are required. Of course, it is extremely necessary to create comfortable living conditions for those families and those military personnel who are already serving here in the North. For the most part, these are units of the Northern Fleet. After all, Vladimir Vladimirovich, these are young, active, usually large families, we just discussed this, who live in difficult climatic conditions, this is also evident from today's weather. Of course, the worst thing is the meager, undeveloped infrastructure of the garrisons. To do this, it is necessary to build 106 residential buildings to resettle people from the existing housing stock. These are the houses in which people live, which, according to experts, are either useless or incorrectly repaired; people simply need to be moved from there. Renovate 362 residential buildings that can still serve and operate, build and repair 302 social and engineering infrastructure facilities. The preliminary requirement for these purposes is 148.6 billion rubles. That's a lot of money. If we take the amount of the total costs that I just talked about - both for those who must come to serve us and for those who are already serving - for the proper conditions, for those who ensure global security through nuclear deterrence, security of the Arctic and the Northern Sea Route, 283.5 billion rubles are needed. But we are, of course, talking about a minimum ten-year period. And if we take the annual volume of investments that are required in order to organize this work, depending on the period of the plan that must be approved in accordance with your instructions, it is about 20–28 billion rubles per year. But once again I really want to draw attention to the quality of people's lives, which requires radical change. This task of developing such settlements is

clearly stated in Arctic development strategies, which, Vladimir Vladimirovich, you approved in 2020.

I propose, taking into account the above, which we also discussed with you while we were traveling, to provide for an integrated approach to the resettlement of military personnel with their families. This should be a conditional master plan, when settlement provides for the formation of the entire social infrastructure: schools, kindergartens, access to medicine. That is, in new locations it is necessary to concentrate all the important needs of people, additionally stimulating the development of small and medium-sized businesses there. And special attention must be paid to creating places for military wives.

In Soviet times, and what we see now in the territory, especially in the Pechenga district, which borders Norway, is a series of locations with several houses, which, of course, do not have the necessary infrastructure. When we talk about an integrated approach, we need to design, in fact, new settlements in order to concentrate both military personnel and members of their families there, and create all the necessary conditions for their quality living. We discussed this in advance; it is technologically correct, of course, and, most importantly, it can be done. Dear Vladimir Vladimirovich, I ask for your instructions to approve the appropriate set of measures, taking into account the information provided. I say again, of course, this is a matter of very serious reconciliation, including the amount of funding, but we are talking about a ten-year period. It's really possible to do this in ten years, but I also outlined the amount of funds needed annually. Another issue that requires your support is the topic of the development of strategically important Arctic support settlements - cities, for example, Murmansk, around which very powerful and important projects are now being developed for the Arctic, for the country. Of course, this requires attracting and retaining specialists with the appropriate competence in order to implement these projects, which means that investments in urban infrastructure and in the development of the urban environment must be concentrated and require an appropriate volume.

There is very effective experience in the cities of the Far East, when, through the creation of a master plan and a set of measures based on it, appropriate measures are launched to change the urban environment. I have already reported to you that we are, of course, trying to put the city of Murmansk in order, we are achieving certain things: landscaping and repairs, but concentrating resources for strategically important cities, of course, requires a more serious level of support. I would ask for your instructions to launch such work in the Arctic support cities. We discussed this issue at a meeting of the State Council working group on the development of the Arctic, all colleagues (regions, representatives of the federal Government, and the Minister of the Far East and the Arctic) appreciated and supported this approach. And if you have your support, we are ready to very quickly begin work on identifying such cities together with the Ministry of the Far East and the Arctic and submit it for consideration to the Government. Well, at the end of my speech, I would like to ask for your support for the city of Severomorsk - this is the capital of the Northern Fleet, for the reconstruction of three iconic social facilities of our capital of the Northern Fleet, which, unfortunately, today are, to put it mildly, in a deplorable state. These are the Central Regional Hospital, the large CSKA stadium and the House of Officers of the Northern Fleet. According to preliminary estimates, this requires about 5,100 million rubles. I ask you, dear Vladimir Vladimirovich, for instructions on our support, on the allocation of federal funds to solve, among other things, the specific problems of these three facilities in the city of Severomorsk. This is the capital of the Northern Fleet and, of course, deserves such increased attention. In conclusion, I would like to thank our colleagues and colleagues from the Ministry of Transport, the Ministry of Health, the Ministry of Construction and the Ministry of Education, who really help us - and have helped and continue to help us - including concentrating resources on the ZATO and ONP, where our military personnel live. It is thanks to such joint work, including with the Ministry of Defense, that we have been able to move forward in four years. But I have already described the problems. The report is finished. Thank you for your attention. Vladimir Putin: Thank you.

Please, Chekunkov Alexey Olegovich.

A. Chekunkov: Dear Vladimir Vladimirovich! Dear Colleagues!

Three years ago, strategic documents were adopted: Presidential Decrees on the Fundamentals of State Policy in the Arctic and the Development Strategy of the Arctic Zone of the Russian Federation until 2035. These documents, including provide for the comprehensive development of settlements in which military units are stationed - the approach that Andrei Vladimirovich Chibis spoke about.

In order to ensure an improvement in the quality of life of people in the North, the task is to increase the income of the Arctic regions and develop the economy at an accelerated pace. The Government of the Russian Federation applied mechanisms created in the Far East. The entire territory of the Arctic zone is recognized as a free economic zone. New investment projects receive government support measures. As a result, the dynamics of creating new enterprises turned out to be even higher than in the Far East. The implementation of 715 new investment projects with a total volume of 1.6 trillion rubles has begun. In fact, 356 billion have already been invested, 12 thousand new jobs have been created. New enterprises create

additional budget revenues, which, in turn, make it possible to develop the social sphere. In the long term, significant socio-economic effects will come from the implementation of the Northern Sea Route development plan. State support for investment projects is provided in such a way as to maximize the benefit for the Arctic regions, including closed administrative territories and the ONP. For example, for the Murmansk region a separate decision was made on the NOVATEK project. Today, Vladimir Vladimirovich, you launched a unique plant where not only the plant construction project itself, but also contractors received the status of resident of the priority development territory. We have verified this approach with the Accounts Chamber and the Federal Treasury. As a result, these construction companies were registered in the region, and the regional budget received an additional two years of more than 4 billion rubles in income, which, among other things, made it possible to take the first steps in the program for the renovation of ZATOs and ONP. Also, on your instructions, the state program for the socio-economic development of the Arctic provides funds for the development of social infrastructure. In the current Budget Law, this is an average of 2 billion rubles per year. These funds provide the Arctic regions with additional resources to solve priority problems, but do not provide a comprehensive solution to all the tasks you have set. Dear Vladimir Vladimirovich!

Today, a new economy is being created in the Arctic, and Russia's security framework in the North is being strengthened. The success of solving these problems depends on where and how people live. The Russian Arctic is five million square kilometers, almost 20 thousand kilometers of maritime border. Along its entire length there are strategically important objects, as you said, Vladimir Vladimirovich, of both a defense and economic nature. Almost 2.5 million people live in 250 settlements above the Arctic Circle. It is advisable to identify support cities and towns (ZATA and ONP) that provide key tasks in the field of security and in the field of economy. The focused development of such support cities will create the basis for retaining people and attracting new in-demand specialists to the Arctic. An example of such focused development is the development plan for the city of Norilsk until 2035, adopted on your instructions. The plan, totaling 120 billion rubles, involves financing - 24 billion from the federal budget, 15 from the regional and 81 from extra-budgetary sources. Thus, the plan binds the city and its key enterprise to a long-term development program.

The Ministry for the Development of the Far East and Arctic is ready, together with the Arctic regions, to prepare comprehensive plans for the development of support cities, as well as Arctic agglomerations, where several settlements use common infrastructure.

As part of the implementation of your instructions for the preparation of master plans for Far Eastern cities, we, together with Yuri Petrovich Trutnev and Maxim Stanislavovich Oreshkin, worked not only with urbanists and architects, but analyzed the structure of the economy and employment, where people work in these cities, built the trajectory of the city's development from the current state to the target, planned.

We are ready to apply the same approach in the Arctic within the framework of ZATA and UNP.

Dear Vladimir Vladimirovich!

The main development support mechanisms used in the Arctic were first tested in the Far East. And one of the most popular among people and useful for the economy was your solution on the Far Eastern mortgage; 74 thousand families have already taken advantage of it. It gave impetus to the construction industry; in 3.5 years, the volume of completed housing in the Far Eastern Federal District doubled, to 4.5 million square meters. The increase in housing supply made it possible to contain prices; the increase in the cost of a square meter in the Far East during this period was one and a half times lower than the national average. On each and every trip to the Arctic regions, people asked us about the possibility of extending Far Eastern mortgages to the Arctic. We worked with Anton Germanovich Siluanov on possible solutions and found mechanisms that would attract new developers to the Arctic without increasing the price per square meter. This is a condition under which a preferential mortgage at two percent is provided only for new housing in the primary market and at the price of the Ministry of Construction.

Dear Vladimir Vladimirovich, we ask you to support the expansion of the Far Eastern Mortgage program to the Arctic, taking into account this condition. Thank you for your constant attention to the development of the Arctic.

Vladimir Putin: Thank you, Alexey Olegovich.

Let's summarize some results.

The first thing I would like to draw your attention to is. It is necessary to complete the coordination of an action plan for the development of the housing, energy, and social infrastructure of these ZATOs and ONP, as well as the populated areas of the Arctic zone as a whole - this is broader, including where our military formations are stationed. I will add that funding for the activities of this plan must come from different sources, and this must be agreed upon. And, as I already said, all this must be done before September 1. Let me remind you that this is the modernization of primary health care, renovation of schools, updating of the housing and communal services system, housing construction, landscaping, and so on.

Second. The plan should be formed on the basis of the master plans discussed here, if possible for each of these settlements or, as the Minister proposed, for

several united in agglomerations for the purpose of effective development of the territories, I agree. Another point that we didn't talk about now, but we talked about with the governor while we were moving here: we need to think in advance about the employment of members of military families. There are different opportunities here, there is nothing new or complicated here, you just need to think about it in advance, including ensuring the availability of programs for retraining or mastering new specialties for those people who want to do this. The fourth is about the so-called support settlements of the Arctic zone. I agree with you, support these proposals and ask the Government, together with the regions, to determine a list of such settlements. It is clear that population size alone is not the main thing in this case. We must keep in mind that even small settlements, small villages can be of strategic importance for the country, and we need to think about this.

For supporting Arctic settlements, it is also necessary to prepare master development plans for the period until 2035, similar to those that have already been developed for Far Eastern cities. I ask you not to delay this work, so that by October 1, 2024, on the basis of ready-made documents, we can approve comprehensive plans for the long-term development of Arctic cities also until 2035 and with clear sources of financing. At the same time, it is important to begin the practical implementation of measures in 2025, no later. Further. The minister also spoke today about the "Arctic mortgage". I think that such a measure can become a serious support for citizens living in the regions of the Arctic zone. We know the results of this preferential mortgage at two percent in the Far East; it really played a role: 73 thousand Russian families improved their living conditions using this mortgage. I agree to distribute it to young families living in the Arctic zone. That is, for them the preferential mortgage rate will also not exceed two percent. I propose to set the validity period of this measure until 2030.

As for the facilities in Severomorsk, we have now agreed on this, a new sports complex will be built by the Ministry of Defense, the stadium will be put in order with the help of the funds that are allocated - (addressing Yu. Trutnev) redistribution, as I understand it, Yuri Petrovich - redistribution certain resources allocated to this zone. The Ministry of Defense has made a decision regarding the Officers' House - it will put it in order. As for the central hospital, the Minister of Health promised that this issue would also be resolved during the finalization of the budget. I assume that all this will be fulfilled. Everything we agreed on today must be formalized in the form of appropriate instructions.

Thank you all very much. I proceed from the fact that everything we agreed on, and especially everything that will be recorded on paper, will certainly be fulfilled. Thank you, all the best.

Main part

The main problem in developing criteria for ZATA and ONP is to assess the role that specific settlements play in ensuring the development of the surrounding territory: according to this definition, ZATA and ONP should play a significant role in ensuring national security (including ensuring socio-economic development) not only not so much on its own territory, but around it.

The most difficult problem here seems to be assessing the role of settlements in the development of the surrounding territory (for most settlements an individual assessment of transport accessibility is required, taking into account seasonality, passability of winter roads, etc.). Therefore, the analysis is based on general patterns identified on the basis of a study of the role of certain industries of specialization of Arctic settlements in the economy of the Russian Arctic. In general, the algorithm for determining the criteria for support settlements was based on the first stage - the selection of basic activities - such types and/or areas of activity that in populated areas of the Russian Arctic, as a rule, have a significant impact on the development of the surrounding territory. Further, at the second stage, criteria for assessing the level of development of basic industries and/or the degree of their influence on the development of the surrounding territory were selected. The following main groups of basic industries of potential support settlements of the Russian Arctic were selected, influencing the development of the territory outside the settlement of their location, namely:

ensuring Russia's external security;

ensuring internal security of Russia;

security socio-economic development and a decent standard and quality of life, including the followingcurrent subgroups:

manufacturing industry (subject to the significant role of the relevant enterprise in the industry and/or specialization in the production of uniqueproducts);

activities on transport and logistics support for the development of the Russian Arctic, including the development of mineral resource centers;

social and cultural support activitiespopulation of the Russian Arctic;

activities on innovation, informationstaffing and staffingeconomic development of the Russian Arctic (including geological exploration and geodetic work, meteorological services, R&D in the development of specialized goods, technologies and services for use in the Russian Arctic, higher education, and other research activities);

activities for administrative, organizational and service support of the mining industry (including administrative divisions of resource mining companies, drilling operations, maintenance and repair of wells, and other services in the field

ofrecovery of oil and gas, repair of mining equipment, etc.).

Initial indicator baseand methods of analysis. The range of indicators used can be divided into several thematic categories based on the nature of data sources and information storage formats, namely:

Basic indicators:

(1) status of ZATO and ONP;

(2) position in an officially established gamelow zone;

(3) administrative status.

Indicators in the field of internal security:

(4) presence of MFC;

(5) availability of emergency response points (relatedto fire rescue units, sea rescue coordination centers, sea rescue sub-centers);

(6) presence of Ministry of Internal Affairs points.

Indicators characterizing the role of settlements as supply bases:

(7) availability of food supplies;

(8) category of fuel and lubricants warehouses.

Indicators of development of the mining industry.

The indicators of this group were calculated using geographic information systems or packages for working with tabular data - based on primary indicators for licensed areas (Rosgeolfond), received upon a special request. The analysis of the level of development of the mining industry was carried out on two logical grounds: geographical and corporate.

On the first basisa 150-kilometer zone around each settlement was analyzed. Using spatial connection tools in a given buffer zone, the following were calculated:

volumes of gas, oil, gold-platinum productionraw ores, diamonds, other solid minerals according to the last available year (hereinafter referred to as TPI);

average values of the base production increasechi for the specified categories of minerals over the past 5 years;

values of the estimated supply of reserves of the specified categories of minerals while maintaining the current level of production (ratio of volumereserves in categories A + B + C1 to production volume).

The unit of analysis was the licensed areas (source: Rosgeolfond), to which thereceivedupon request, quantitative data on deposits of hydrocarbon raw materials and solid minerals. The analysis took into account all areas within the 150 km zone, including those that are not entirely contained within this buffer zone. Thus, the analysis of the development of the mining industry was carried out with a reserve.

On the second - corporate - basis, data on the extraction of raw materials and the provision of raw materials were also summarized, but they were grouped by the city closest to the license area and by the corporate decision-making center. This method is more accurate in terms of determining the connection between a populated area (as a decision-making center) and the prospects of individual fields. However, it is not possible to unambiguously compare each licensed area with a specific decision-making center (most often, either due to the complex system of subordination and co-ownership of enterprises, or due to the difficulty of systematizing and verifying the accuracy of data for small companies). Therefore, the corporate method of linking the parameters of licensed areas was carried out only for the largest decision-making centers: the settlements in which the headquarters or regional representative offices of the largest subsoil users of the Arctic zone were located were considered. A total of 21 oil and gas companies and 20 companies specialized in the extraction of solid minerals were selected. Thus, for each settlement the following were calculated:

volumes of gas, oil, gold productionnew ores, diamonds, other solid minerals in deposits owned by companies with a head office or regional office in a given locality;

values of estimated reserve availabilitythemselves indicatedcategories of minerals while maintaining the current level of production at the sites of companies with a head office or regional office in a given locality.

Due to lack of data, calculation of the average valuebasis increase on a corporate basis is impossible.

Indicators of development of the education and medical spheres. This block includes the following indicators, namely:

the presence of state and non-state institutions of higher education (including branches);

the presence of scientific departments (including scientific institutions in the direct department of the federalexecutive authorities, availabilityscientific organizations established by government bodies of a constituent entity of the Russian Federation; scientific laboratories, testing grounds, hospitals of state scientific institutions, as well as their branches with a small number of employees (except for stations within the structure of Roshydromet); presence of a directorate of a state reserve or national park.

Data is based on materials provided upon special request by the Ministry of Scienceand higher education of the Russian Federation, and were supplemented by analyzing the official websites of all federal ministries and their subordinate organizations, official websites of regional branches of the Russian Academy of Sciences. A big problem is the collection of data on relatively small Arctic divisions of scientific institutions (branches, laboratories). The work uses a list collected from the official websites of institutions of the Academy of Sciences, as well as higher educational institutions. However, it may be incomplete, therefore it is used as a basis for forming criteria for determining SNP and ZATO on the declarative principle;

Availability general education And secondary specialized educational institutions;

availability of hospitals, clinics, dispensaries and maternity hospitals at the regional/district and inter-district levels;

the presence of other medical institutions of the Russian Ministry of Health system (hospitals, clinics, dispensaries)pansers of a level below the inter-district level, outpatient clinics, paramedic and obstetric centers and ambulance stations);

the presence of medical institutions of any category and form of ownership in populated areas of the roadless zone (subject to the implementation of measuresaccording to recommendations).

The data sources were materials, semiavailable on request. To link organizations to a specific locality according to indicators 36–37, address data was used, the analysis was carried out using the functionality of table editors. The abundance of errors when recording addresses led to individual anomalies in the indicators, which were corrected manually. For indicators 38–40, the OKTMO code was used.

Indicators characterizing the role of a settlement in the settlement system. To characterize a settlement as a central place, indicators specially developed for the purposes of the project were used, based on the construction of so-called Voronoi polygons, which assume that each polygon (partition cell) forms a set of points located closer to one of the elements of the input point data set than to to anyone else. The division of the territory into Voronoi polygons can be interpreted as a division into optimal accessibility zones in off-road conditions, characteristic of a significant part of the Arctic zone. The calculation of Voronoi polygons was carried out twice: the first time for settlements performing certain functions in the field of internal security (the status of an administrative center, the presence of a Ministry of Emergency Situations or MFC), the second time for settlements that have government organizations carrying out medical activities. Based on the results of each simulation, the following indicators were calculated, namely:

population in the Voronoi test site, formed bathroom in this locality;

the ratio of the population in the Voronoi polygon to the own population of the desired locality. When calculating the population, all settlements in the Arctic zone were taken into account (and not just those with a population exceeding 500 people). The existing limitation is that the Voronoi polygons were calculated only within the Russian Arctic - thus, the indicators for settlements located near the border of the Russian Arctic are likely to be underestimated.

Indicators characterizing the transport and logistics situation, namely:

list of airports - selected valid existing airfields of the Russian Arctic;

passenger turnover (thousand people per year) and cargo turnover (tons per year) of airports - averages were calculatedindicators for 2018–2022;

list of fuel and lubricants warehouses - divided into 4 categoriesmountains by capacity (over 100 thousand m3, 20–100 thousand m3, 10–20 thousand m3, 2–10 thousand m3);

list of wholesale food depots and warehouses;

list of seaports indicating the capacity of cargo terminals (thousand tons per year),

list of river ports.

Additional indicators. Additionally, to assess the degree of narrow economic specialization (essentially mono-profile) of large urban districts, the Herfindahl-Hirschman index for employment structure was calculated. Data source: municipal statistics from Rosstat. In addition, the state register of cultural heritage sites was additionally analyzed to assess the prospects for tourism. For each settlement, the number of cultural heritage sites (regardless of status) and the number of cultural heritage sites at the federal level were calculated. The method used is similar to the calculation of indicators.

Selection of criteria for identifying ZATOs and ONPs, their categories and subcategories. Due to the complexity of the classification object, the selection of criteria was carried out using a mixed method. On the one hand, the criteria used were the presence of enterprises and organizations of a certain profile in populated areas (for activities with a wide area of influence on the development of the surrounding territory). On the other hand, for industries where the scale of influence on the surrounding area depends on the characteristics of specific enterprises, qualitative and quantitative characteristics of the relevant enterprises and/or aggregate industry economic indicators for the selected locality were used.

However, during the analysis, cases were identified when a settlement actually has a significant impactinfluence on ensuring national security and socio-economic development of the surrounding territory, however, this function cannot be determined on the basis of available national databases (for example, the presence of unique enterprises, organizations providing socially significant services for indigenous peoples, etc.). Therefore, in the end, two ways are proposed to determine the list of SNPs and ZATOs:

universal, based on existing federal databases;

applicant, based on an application from the local administration and/or other interested parties.

In the latter case, the status of the ONP and ZATO is determined on the basis of an application from the administration of the locality, which includes evidence of compliance of the given locality with the criteria provided for the application method of forming the definition of ONP and ZATO.

In addition, a previous study showed the feasibility of differentiating the criteriafor

masteredand off-road under zones of the Russian Federation. The roadless zone of the Russian Arctic includes settlements that are completely devoid of land transport links - the category of settlements. Thus, the following categories and subcategories (in some cases also types) of support settlements in the Arctic zone of the Russian Federation are proposed.

ONP providing externalsecurity of Russia. The following potential criteria were considered: the presence of a settlement with the status of a ZATO and/or the fact that the settlement was included in the border zone of the Russian Federation, the location of units of the Russian Ministry of Defense in the settlement, etc. Due to the lack of open data, ONP in the field of ensuring external security were selected as a criterion criteria for having ZATO status and belonging to the border zone of the Russian Federation; It is also possible to include other settlements in the Russian Arctic into the ONP category in agreement with the relevant departments.

Criteria determining the category of the ENP for ensuring external security, the subcategory “ZATO”, namely:

whether the locality has the status of a closed city;

subcategory “ONP border zones”:

the fact of the location of this settlement within the border zone of the Russian Federation;

special subcategory of ONP external security Russia (application criterion):

on the recommendation of relevant departments (Russian Ministry of Defense, Russian FSB).

Differentiation of criteria for mastered and unmastered no control is carried out under the Russian Arctic zones.

The subcategory “ZATO”, due to the lack of data on many types of objects and/or the objects themselves (for example, MFC) and taking into account the specifics of the mode of functioning of the administrative-territorial entity, is allocated to a separate subcategory, for which the criteria for determining membership in other categories of public organizations are not applied. This is the only subcategory of the ONP, the settlements of which cannot simultaneously belong to other categories and subcategories of the ONP - ensuring the internal security of Russia. The following are considered as potential criteria: placement in a populated area of state and municipal authorities exercising state and municipal administration; bodies and organizations providing public services, as well as divisions of the Ministry of Internal Affairs of Russia and the Ministry of Emergency Situations of Russia. The population size in the potential zone of influence was also considered as an indirect criterion, which was assessed using the method of the so-called Voronoi polygons. The condition of receiving some government services outside of the place of registration allows us to consider the MFC point as an instrument of influence on the development of the surrounding area, namely in the area of ensuring the availability of government services. Units of the Russian Ministry of Emergency Situations stationed in populated areas, as far as can be judged from the official websites of the relevant units, as a rule, carry out prompt response to emergency situations not only on the territory of the populated area, but also beyond its borders. For example, the Federal State Budgetary Institution “6th Detachment of the Federal Fire Service of the State Fire Service for the Yamalo-Nenets Autonomous Okrug (negotiable)” with its location in the city of Gubkinsky promptly responds to fires and carries out rescue operations, participates in the prevention and elimination of emergencies situations and their consequences at the facilities of the Gubkinsky gas field of Purgaz CJSC and the Komsomolsk gas field of Gazprom Dobycha Noyabrsk LLC, as well as the elimination of road accidents within the boundaries of the units’ departure. It is not possible to collect open data regarding the response zones of units of the Ministry of Internal Affairs of Russia; therefore, the location of units of the Ministry of Internal Affairs of Russia is inappropriate to use as a criterion for identifying closed administrative and administrative units.

Population within one or another accessibility zone from a potential strong point is an ideal indicator. As noted above, due to existing limitations - primarily in the field of assessing transport accessibility in off-road areas, which requires the accumulation of information on local helicopter flights, winter roads, etc. - it was calculated estimated (Voronoi polygons). However, according to the data obtained, the potential zones of influence of many administrative centers include points that are practically not connected with them in transport terms. On the one hand, this reflects the objective situation of the low level of transport accessibility in many areas of the Arctic. On the other hand, the data obtained were still considered inappropriate for use as criteria. In the future, for most categories of SNP, data on the accessibility of the nearest larger settlement by land transport, taking into account winter roads, can be used. Ideally, the basis for assessing the population size in the transport accessibility zone could be based on data from responses to a specially introduced Rosstat population census question (for example: settlements where people traveled during the past year), similar to how in many Western European countries The census includes a question not only about place of residence, but also place of work (settlement).

Geographical analysis of selected features shows that the presence of the status of an administrative center of a subject of the Russian Federation clearly coincides with the presence in the territory of the locality of the MFC and units of the Ministry of Emergency Situations of Russia (those related to fire and rescue units were considered). In addition, both

types of these organizations are represented in the following cities and towns: Apatity, Vorkuta, Gubkinsky, Dudinka, Iskateley, Kirovsk, Kostomuksha, Labytnangi, Monchegorsk, Muravlenko, Nadym, Novy Urengoy, Norilsk, Noyabrsk, Severodvinsk, Segezha, Tarko-Sale, Tura and Chersky.

In a number of settlements with a hundredtus of the center of a municipal district or urban district, represented either by a unit of the Ministry of Emergency Situations of Russia, or by the MFC: Aksarka, Batagay, Belaya Gora, Bilibino, Vidyaevo, Deputatsky, Zhigansk, Zaozersk, Inta, Kalevala, Kandalaksha, Kem, Kola, Krasnoselkup, Leshukonskoye, Loukhi, Mezen, Muzhi, Nikel, Olenegorsk, Olenek, Onega, Polyarnye Zori, Saskylakh, Severomorsk, Srednekolymsk, Tazovsky, Tiksi, Turukhansk, Usinsk, Ust-Tsilma, Khonuu, Chokurdakh and Yar-Sale. Some regional centers and/or urban districts do not have either an MFC or units of the Ministry of Emergency Situations of Russia: Lavrentiya, Pevek, Provideniya, Egvekinot, Belushya Guba, Gadzhievo, Lovozero, Ostrovnoy. On the contrary, there is a division of the Russian Ministry of Emergency Situations or MFC in several villages that do not have the status of regional centers: Igarka, Pangody, Bor, Karaul, Novodvinsk, Ugolnye Kopi, Khatanga, Amderma, Valdai, Verkhneimbatsk, Vorgashor, Vorogovo, Gaz-Sale, Dikson, Zotino, Nadvoitsy, Nosok, Polyarny, Purpe, Revda (Murmansk region), Severny, Snezhnogorsk, Urengoy, Khanymei and Kharp.

In addition, there are seas in Murmansk and DiksonRussian rescue coordination centers, and in Tiksi and Pevek there are sea rescue centers. As a result, the following characteristics were selected that determine belonging to the category of ONP and ZATO in the field of ensuring internal security by category, the criteria for identifying the category of ONP and ZATO ensuring internal security, ONP of the first order, namely:

the presence of the status of an administrative center of a subject of the Russian Federation, the presence of the status of a city district or the administrative center of a municipal district in combination with the presence of a multifunctional center for the provision of public services and a unit of the Ministry of Emergency Situations (fire and rescue units, marine rescue coordination centers or marine rescue sub-centers);

criteria for identifying the category of ONP and ZATO ensuring internal security, ONP of the second order, namely:

the presence of the status of an urban district or the administrative center of a municipal district and/or the presence of an organization of one of the following types: a multifunctional center for the provision of public services, a unit of the Ministry of Emergency Situations (fire and rescue units, marine rescue coordination centers or marine rescue sub-centers).

Differentiation of criteria for mastered and unmastered no control is carried out under the Russian Arctic zones. It is potentially advisable to develop a criterion based on assessing the population size in the zone of best transport accessibility of the ONP - this is especially important, but, unfortunately, most difficult in the roadless zone of the Russian Arctic.

ENP in the field of socio-economic development. The criteria for identifying ONP and ZATO of this category are determined by separate subgroups of types of basic industries (activities); Accordingly, subcategories of ONP and ZATO are identified in the category of ONP and ZATO in the field of socio-economic development. ONP and ZATO with unique and dominant production facilities in the manufacturing industry.

Based on the fact that unique manufacturing enterprises operate in the settlements of the Russian Arctic, as well as enterprises that provide a significant contribution to the production of products in their industry, a special subcategory is distinguished - ONP and ZATO with unique and dominant industries. Unique production means the production of products that are not produced anywhere else in Russia, and transferring the production of this type of product to other populated areas is impossible or economically infeasible. As a rule, the location of such manufacturing enterprises within the Russian Arctic is due to the presence of immovable “specific assets” (a unique deposit, as well as previously created production infrastructure and workforce), the transfer of which to another location is either impossible or extremely ineffective. The dominant production can be recognized as an enterprise located in a populated area of the Russian Arctic, providing at least 1/3 of the products of the corresponding industry, and similarly: transferring the production of this type of product to other populated areas is impossible or economically infeasible.

Examples of unique and/or dominant manufacturing industries, namely:

enterprisesMMC "Norilsk Nickel" in Norilsk: production of nickel concentrate, determined by reference to the mining site;

MMC Norilsk Nickel enterprise in MonchaGorsk: the world's largest and the only production of electrolytic nickel in Russia, tied to the existing complex of infrastructure and workforce;

Zvezdochka and Sevmash enterprises in SeveroDvinsk, tied to the specifics of the White Sea, favorable for the activities being carried out;

Large-tonnage construction center under constructionnal seastructures in Murmansk (Belokamenka), tied to the infrastructure of the city of Murmansk and the characteristics of the Kola Bay water area.

The criterion for identifying a subcategory of SNP with unique and dominant industries (application criteriary) the presence of enterprises that satisfy one of the following conditions, namely:

1) ensuring the production of at least 1/3 of the industry's products in the Russian Federation;

2) the impossibility/economic inexpediency of moving the enterprise outside the Russian Arctic (based on the declarative principle);

3) differentiation of criteria for developed and roadless subzones of the Russian Arctic is not carried out.

Transport and logistics ONP and ZATO. The functions of supporting transport and logistics settlements in the Russian Arctic can be performed by transport hubs that provide communication with the main settlement zone, occupy a central place in regional and intermunicipal transportation, are in a transit position on the main supply routes, serve large remote resource extraction sites or play the role of large warehouse and logistics bases. Their spatial distribution is uneven: the specificity of the roadless zone lies in the functioning of local transport systems, isolated from each other, respectively, each of them has its own strongholds. To identify transport and logistics ONPs and ZATOs, a number of qualitative and quantitative criteria were used, reflecting different aspects of the functioning of transport, namely:

Availability of direct passenger flights to Moscowwu - allows you to identify key points,which provide communication with the main settlement zone;

the presence of an airport with a passenger turnover of over 50 thousand people per year - the largest passenger air hubs;

the presence of an airport with a cargo turnover of over 500 tons per year - the largest cargo air hubs;

presence of a freight railway terminal -railway junction stations;

presence of a seaport - cargo hubs, supportsupply points;

the presence of a seaport with a cargo terminal capacity of more than 5 million tons - the largest cargo hubs and supply bases;

presence of a river port - internal supply basesnia;

presence of a fuel and lubricants warehouse (category I and II - with a capacity of over 20 thousand m3) - the main warehouse and logistics centers.

Settlements and rotation camps that meet at least one of the criteria were included in the final list of transport and logistics ONP, with one exception: it did not include settlements in the road zone, in which only the criterion of having a category I or II fuel and lubricants warehouse was met (this is Monchegorsk , Kirovsk, Pangody, Pravokhettinsky). For transport schemes of the developed part of the Russian Arctic, the factor of locating warehouse centers is much less significant than for transport schemes of the roadless zone, which often have no alternative.

Based If settlements meet the above criteria, a summary matrix was compiled and the sum of points was calculated (1 criterion - 1 point). Settlements with a score of 2 and above were classified as multifunctional, the rest - as monofunctional (with the exception of settlements with 2 points according to the sum of criteria 5 and 6 - monofunctional ports of the Northern Sea Route of the first order). Rotational camps were classified as a separate type due to their high specificity: their supply schemes are weakly dependent on public transport infrastructure, their functional role is radically different, they are focused on servicing a specific field, and not the surrounding area. In addition, in some cases, important transport facilities or large fuel and lubricant warehouses are located in settlements with a population of less than 500 people - such settlements are also proposed to be included in the number of support ones, despite the fact that in all other cases only settlements of larger numbers are taken into account.

ONP and ZATO for socio-cultural provision of the populationAZRF. A key factor in performing the functions of an ED in this area is the availability of medical institutions, so the main feature of an ED will obviously be the presence of a medical institution with a license to provide medical services. When selecting the criteria for identifying EDs and ZATOs in the field of sociocultural support, an assessment was made of the zones of influence of potential ZATOs and EDs in which medical institutions are located, using Voronoi testing grounds, however, as in the case of administrative centers, the picture did not adequately reflect the real situation. Unfortunately, the situation in reality is close in its inefficiency to the calculated one: interviews with specialists showed that often the nearest medical institution is not authorized to provide the required volume of medical care, which sometimes creates a threat to the life and health of patients. Therefore, in the future, it is advisable to conduct a detailed study of the transport accessibility of Arctic settlements, especially significant for roadless areas. Based on the results obtained, a selection will be made of objects as reference settlements, which are the points of best transport accessibility for the maximum number of residents and workers in the "zone of influence" (the latter case is a special problem, since it requires taking into account not only permanent residents, but also shift workers, accounting which have not yet been systematized).

As a result, it was proposed to distinguish EDs and ZATOs according to the existing classification of the level of service: state regional/district and interdistrict medical institutions, as well as maternity hospitals of any category - category I; city and district hospitals, clinics and dispensaries - category II.

However, in off-road conditions, proximity to the point of medical care is of critical importance, therefore, a differentiated approach to the selection of criteria for identifying emergency departments depending on the transportsituations. For settlements located inroadless subzone of the Russian Arctic, it is proposed to identify an additional type of emergency medical service for socio-cultural support of the third order according to the criterion of the presence of any state (medical and midwifery stations, outpatient clinics) and non-state medical organizations (including medical organizations in the department of mining companies). However, the allocation of this subcategory of emergency departments is advisable subject to the subsequent implementation of measures to create the possibility of providing emergency medical care in these medical organizations. In addition, it is recommended to include all settlements in which state first-aid posts and outpatient clinics are located as a type of emergency social and cultural support, regardless of the transport situation.

Besidesmedical institutions, the grounds for identifying support settlements included objects of cultural and natural heritage of federal significance, as well as, based on the application criterion, settlements with institutions that contribute to the preservation and development of the culture of the indigenous and/or old-timers, as well as institutions providing services to the population of the surrounding territory in an amount of at least 25% of the volume of services provided to the population at the location of such institutions.

Criteria for identifying ONP and ZATO in the sociocultural categoryprovision. Subcategory of ED and ZATO - medical care centers, namely:

type of emergency department - medical care center Irow:

the presence of public medical institutions at the regional/district or inter-district level or the presence of a maternity hospital at any level;

type of SNP - centerprovision of medical care of the second order:

the presence of public medical institutions: hospitals, clinics or dispensaries at the district or city level.

In some cases, hospitals and other medical institutionsat the national level are located in settlements with a population of less than 500 people - such settlements are also proposed to be included in the number of support ones, despite the fact that in all other cases only settlements with a larger population are taken into account:

type of emergency department - medical care centerIII order, at least one of the following conditions must be met:

availability of public medical institutions: paramedic and midwife station, outpatient clinic;

the presence of a medical institution of any category and form of ownership in populated areas of the roadless zone (subject to the implementation of measures in accordance with the recommendations).

View of the SNP with natural and cultural heritage sitesdiya (for developed and roadless subzones of the Russian Arctic):

the presence of natural and cultural heritage sites of federal significance.

Type of ONP and ZATO for cultural development (declarative):

the presence of cultural institutions aimed at preserving and developing the culture of indigenous minorities and/or the old-timer population;

the presence of cultural institutions that provide services to the population living outside the locality (including tourists), in an amount of at least 25% of the volume of services provided to the population living in the locality.

ONP and ZATO in the field of innovation and information supportsocio-economic development of the Russian Arctic. In this category, the key feature chosen is an indicator often used in studies of the region's innovative potential—the presence of a university; in Russian conditions, these are institutions of higher education, as well as organizations included in the system of the Russian Academy of Sciences. Thus, as a criterion for ONP and ZATO in the field of innovation and information support for the socio-economic development of the Russian Arctic of the first order, the criterion of the presence of a state higher educational institution and/or state scientific institutions directly subordinate to federal executive authorities was chosen (in the latter case we are talking about such important institutions as the federal state budgetary educational institution of higher education, located under the Ministry of Health of the Russian Federation, the Northern State Medical University in Arkhangelsk - an ancient forge of medical personnel for the Far North, as well as two branches of the departmental scientific institute - the federal state budgetary scientific institutions "All-Russian Research Institute of Fisheries and Oceanography" in Murmansk and Arkhangelsk (Federal Agency for Fisheries).

Taking into account the specifics of the Arctic, it is of great importanceThere are also a number of scientific institutions, often of a small scale: scientific testing grounds and laboratories (for example, the Igara geocryological laboratory of the P. I. Melnikov Institute of Permafrost Sciences of the Siberian Branch of the Russian Academy of Sciences, the Integrated Geophysical Station of the Yu. G. Shafer Institute of Cosmophysical Research and Aeronomy Siberian Branch of the Russian Academy of Sciences in the village of Zhigansk of the Republic of Sakha (Yakutia), North-Eastern Scientific Experimental Station in the village of Chersky of the Pacific Institute of Geography of the Far Eastern Branch of the Russian Academy of Sciences and many others). Unfortunately, it was not possible to compile a

guaranteed complete list of such scientific institutions even with the help of a request to the Ministry of Science and Higher Education of the Russian Federation. Therefore, it was decided to introduce a declarative criterion for determining SNP in the field of innovation and information support for the socio-economic development of the Russian Arctic of the second order - based on the list of secondary scientific and educational institutions of the Russian Arctic as a preliminary list. In addition to scientific stations and testing grounds, it includes the following types of scientific and educational institutions: branches of state educational institutions of higher education; non-state educational institutions of higher education (headquarters or branches); government institutions implementing secondary specialized education programs; scientific organizations established by state authorities of the subject (as an example, the state government institution of the Yamalo-Nenets Autonomous Okrug “Scientific Center for Arctic Research”); educational organizations in the field of additional professional education, established by federal executive authorities (the federal state autonomous institution of additional professional education “Arkhangelsk Aviation Training Center” of the Federal Air Transport Agency is extremely important for staffing the Russian Arctic - it trains helicopter pilots); scientific laboratories, testing grounds, hospitals with a permanent staff of scientists in the department of state scientific institutions (except for stations within the structure of Roshydromet); branches of a state scientific institution with a small number of employees (a striking example is the Research Institute of Agriculture and Ecology of the Arctic - a branch of the Federal State Budgetary Institution "Krasnoyarsk Scientific Center of the Siberian Branch of the Russian Academy of Sciences"); Directorate of state reserves or national parks. However, many departmental, private, and regional enterprises and organizations operating in the field of R&D remain outside these criteria. To take them into account, it is also proposed to use application criteria. In total, the following system of criteria is proposed.

Subcategory of ONP and ZATO in the field of innovation and information support for socio-economic developmentAZRF:

type ONP and ZATO - centers of innovation and informationfirst order security:

the presence of a state higher educational institution and/or state scientific institutions directly subordinate to federal executive bodiesauthorities;

type of ONP and ZATO - centers of innovation and information support of the second order (application criterion):

the presence of one of the following types of scientific and educational institutions: a branch of a state educational institution of higher education; non-state educational institution of higher education (head office or branch); a state institution implementing secondary specialized education programs; a scientific organization established by government bodies of a constituent entity of the Russian Federation; educational organization in the field of additional professional education, established by the federal executive body; scientific laboratory, test site, hospital with a permanent staff of scientists in the department of state scientific institutions (except for stations within the structure of Roshydromet); a branch of a state scientific institution with a small number of employees; directorate of a state reserve or national park;

type of ONP and ZATO - specialized R&D centers (application criterion):

the presence of enterprises and organizations of private, regional and municipal ownership,carrying out activities in the field of scientific research and development (or their separate divisions, OKVED code 72) provided that they meet the criteria for the intensity of activity in the field of R&D;

type of ONP and ZATO—exploration support centers (declarative):

the presence of enterprises in the field of geological exploration (OKVED code 71.12.3 Geological exploration, geophysical and geochemical work in the field of subsoil study and reproduction of the mineral resource base), provided with the necessary minimum infrastructure: a fleet of all-terrain vehicles, staff, a core storage facility and/or a stone storage facility of a certain area;

type of ONP and ZATO—centers for providing specializedinformation (application):

presence of enterprises operating in the field of geodesia and cartography, hydrography,ecology and environmental management, geophysical and heliophysical work, architecture;

viewONP and ZATO—centers for the implementation of experimental technologies (application):

Availabilityenergy generation sources with a capacity of more than 100 kW using alternative fuels;

the presence of laboratories and testing grounds specializing in the testing of innovative equipment and/or technology.

ONP and ZATO administrative organizational and service support for the mining industry

To systematize indicators, all types of activities in mining industry were mergedinto the following groups, namely:

gas production;

oil production;

mining of gold-platinum ores;

diamond mining;

extraction of other solid minerals.

For each group, production indicators and reserve availability were analyzed (the ratio giveninformation about reserves and production

levels), production dynamics over five years in two different ways, namely:

for licensed areas that fully or partially fall within a zone with a radius of 150 km from each populated area;

for licensed areas associated with the head and/or regional office of the company that owns the license for the extraction of minerals in the corresponding licensed areas.

Both methods have their own characteristics and limitations for use. Linking data to the area around a settlement may in some cases (especially for small settlements) give a false connection between the settlement and the mining industry (for example, no further than 150 km from the village of Nelmin Nos in the Nenets Autonomous Okrug, hydrocarbon production is carried out, but the village is not is the production or personnel base for their extraction). Linking data on production and reserves to the location of the head or regional office of the company - the owner of production licenses in the relevant areas potentially more adequately reflects the economic base of settlements (locations of company offices), but due to the specifics of registration of licensed areas, data on them in some cases do not reflect connections with the local production base: the license area relates only to the company's head office in Moscow. In most cases, however, linking reserves and production indicators to specific localities where the company's offices are located is considered adequate, which makes it possible to estimate, as a first approximation, the potential for natural resource production in those license areas for the development of which a specific city—the location of the company's office—is the management authority base. Similar assessments were carried out for 20 leading companies in mining in each of the identified categories. The offices of these companies are shown on the "Decision Making Centers" map (in two general categories: in the oil and gas complex and in the mining industry, including gold mining).

A populated area, however, can be the base for the development of a deposit, even if there are no company offices there (for example, Pevek for the Kinross Gold company, which mines gold at the Kupol deposit). Often, service departments and other contractors are present in such cities and towns, and workers are located (including for permanent residence, etc.). For a preliminary assessment of the range of such settlements - potential candidates for the status of support settlements - supply bases for the mining industry, the first criterion was used, based not on the organizational, but on the spatial proximity of the settlement and mining sites, namely data on a set of sites within a radius of 150 km from the populated area. To level out errors and exclude settlements that are not involved in the production of raw materials, it is necessary to use a declarative criterion.

Subcategory of ONP and ZATO administrative and organizationaltechnical and service support for the mining industrysti:

type of ONP - mining industry support centers1st order laxity:

the presence of the head office of a company that is one of the largest 20 producers of the Russian Arctic in the corresponding group of mining industries (or the head office of its separate division or subsidiary) subject to the condition of estimated reserve availability in the licensed areas of the distributed subsoil fund, licenses for the use of which belong to this company, for a period of at least 20 years.

Despite the development of universal criteriaallocation of ONP and ZATO - centers for supplying the extractive industry of category I, the company can submit an application to revise the list of ONP of this subcategory based on a package of licenses for the extraction of mineral resources and reports on current production (application criterion);

type of ONP - mining industry support centers 2nd order laxity (declarative criterion):

- a joint application of local government bodies in whose department the given settlement is located, and a company (group of companies) extracting minerals in licensed areas of the distributed subsoil fund within 150 km from the given settlement (based on information about the package of licenses for the extraction of minerals minerals and reports on the current production of a company or group of companies mining mineral resources in licensed areas within 150 km from a given locality) (application criterion), and data on service enterprises technologically related to ensuring the extraction of mineral resources. The application must contain evidence of simultaneous compliance in a given locality with the following conditions, namely:

1) the estimated provision of mineral reserves in a separate group of mining industries in licensed areas of the distributed subsoil fund located within 150 km from a given locality exceeds a period of 20 years;

2) average base increase for the 5 previous years beforethe yield of mineral resources of the same group of industries in licensed areas within 150 km from a populated area exceeds 0.1;

3) location in a given locality of service enterprises and organizations technologically related to ensuring the extraction of mineral resources.

Despite the declarative principle of determining this type of SNP and ZATO, a preliminary list of SNP and ZATO is presented, determined on the basis of the following criterion: the estimated supply of mineral reserves in a separate group of mining industries in the licensed areas of the distributed subsoil fund, located within 150 km from a given populated area point, exceeds the period of 20 years; the average base increase over the previous 5 years of mineral production of the same group of industries in licensed areas within 150 km from a populated area exceeds

0.1. If in the settlements of this preliminary list there are service enterprises technologically related to the extraction of mineral resources, such settlements can apply for inclusion in this type of ONP and ZATO - centers for supporting the mining industry of the second order;

type of ONP - promising centers for supplying the mining industry (preliminary list forclarifications based on applications):

a populated area that is the closest to a licensed area of a distributed subsoil fund (a group of adjacent license areas), but no further than 200 km from it, where it is planned to put into operation new deposits of solid minerals or hydrocarbons with a production potential for a period of at least 20 years and a potential average the annual production volume over the next 20 years is at least 1% of the annual production volume of the corresponding type of minerals in the Russian Arctic (according to a joint application of the company - the license holder and municipal authorities).

Proposals for the list of support settlements of the Russian Arctic based on the selected criteria.

Based on the identified criteria, 3 main categories of SNP were identified, and the third category - SNP for ensuring socio-economic development - is divided into five subcategories, distinguished according to universal and/or declarative criteria. In some subcategories, individual types of SNPs are additionally identified. A complete list of proposed support settlements by category, subcategory and type (for some subcategories) is presented in the Federal Law of the Russian Federation; In addition, a cartographic display of the proposed SNP system is presented for individual categories and subcategories in the Federal Law of the Russian Federation. The functions performed by ONP and ZATO in ensuring national security and socio-economic development of the Arctic with the chosen approach are presented in the Federal Law of the Russian Federation.

Proposed method for isolating SNPs and pre-sex CATOsmakes it possible to include the same populationa particular point into different categories and subcategories of support settlements - for example, if it has both strategic, transport and logistics significance, and is also important as a point of information support for socio-economic development. The greater the number of subcategories of the UNP a specific locality is included in, the higher its cumulative impact on ensuring national security and socio-economic development of the Russian Arctic. A system of points was developed showing the degree of cumulative impact of the SNP on ensuring national security and socio-economic development of the Russian Arctic, based on the number of cases of inclusion of a given SNP in different subcategories of SNP, identified according to universal criteria (inclusion in subcategories of SNP of the first order - 2 points, inclusion in subcategories of II order SNP - 1 point). At the same time, it is possible to include settlements in additional types of SNP, allocated according to the application criteria, which will lead to an increase in the sum of points of the cumulative impact of SNP on ensuring national security and socio-economic development of the Russian Arctic.

However, the analysis carried out allows us to establishto develop the primary hierarchy of the ONP and ZATO according to the degree of diversity of impact on ensuring national security and socio-economic development of the Russian Arctic (without taking into account the stronghold settlements allocated on the basis of the application principle). In total, the list of settlements included in this hierarchy included 180 settlements of the Russian Arctic (in two cases - in the subcategories of the SNP of innovation and information support for the development of the Russian Arctic of the second order and the SNP - centers for supporting the extractive industry of the second order - during the formation of this hierarchy of the SNP and ZATO preliminary lists of support settlements, compiled according to a narrowed set of criteria, are taken into account; in the final version, it is planned to form a list of SNPs of these types according to the declarative principle).

In the proposed system of criteria, the reference populationThe main points of the Russian Arctic are divided according to the number of directions and the strength of influence on ensuring national security and socio-economic development of the Russian Arctic into the following four groups:

1. Key support settlements with maximum impact on ensuring national security and socio-economic development of the Russian Arctic: Anadyr,Apatity, Arkhangelsk, Dudinka, Kirovsk, Murmansk, Nadym, Naryan-Mar, Novy Urengoy, Norilsk, Noyabrsk, Salekhard.

Key settlements with a medium level of impact on security national securityand socio-economic development of the Russian Arctic: Batagai, Vorkuta, Gubkinsky, Iskateley, Kandalaksha, Kola, Kostomuksha, Krasnoselkup, Labytnangi, Monchegorsk, Onega, Pevek, Polyarny, Provideniya, Severodvinsk, Segezha, Tazovsky, Tarko-Sale, Tiksi, Tura, Turukhansk, Coal Mines, Usinsk, Khatanga, Chersky.

Key settlements with limited impact on ensuring national security and socio-economic development of the Russian Arctic: Amderma, Belaya Gora, White Sea, Belomorsk, Bilibino, Vidyaevo, Gadzhievo, Dikson, Zhigansk, Zaozersk, Zyryanka, Igarka, Inta, Kamenka, Karaul, Kem, Kovdor, Lovozero, Mezen, Muravlenko, Cape Kamenny, Nadvoitsy, Nikel, Novodvinsk, Nosok, Olenegorsk, Ostrovnoy, Polyarnye Zori, Severomorsk, Snezhnogorsk of the Murmansk Region, Snezhnogorsk of the Krasnoyarsk Territory, Solovetsky, Srednekolymsk, Umba,

Urengoy, Ust-Tsilma, Chokurdakh, Egvekinot, Yar-Sale.

Key settlements of local importance (in bold highlighted populated points with a population of less than 500 people or rotational camps with infrastructure that isThis is the basis for classification as a SNP): Beringovsky, Aksarka, Antipayuta, Antsiferovsky Bor, Anyuysk, Barentsburg, Batagai-Alyta, Belushya Guba, Bovanenkovo, Bolshoye Anisimovo, Bor, Borovoy, Vaegi, Valdai, Varandey, Velikovisochnoye, Verkhneimbatsk, Verkhnyaya Inta, Verkhoyansk, Volochanka, Vorgashor, Vorogovo, Gaz-Sale, Gyda, Dalnie Zelentsy, Deputatsky, Dolgoshchelye, Zapolyarny, Zelenoborsky, Zotino, Indiga, Kalevala, Kanchalan, Karatayka, Karpogory, Koashva, Kolymskoye, Krasnoye, Kutopyugan, Lavrentiya, Leshukonskoye, Longyugan, Loukhi, Lugovoi, Maloshuika, Markovo, Meinypilgyno, Muzhi, Nakhodka, Nelmin Nos, Nenoksa, Nes, Neshkan, Nivsky, Nizhneyansk, Nizhnyaya Pesha, Novorybnaya, Novy Port, Nyda, Oksino, Olenek, Olenya Guba, Oma, Pangody, Pinega, Pravokhettinsky, Primorsky, Priozerny, Purovsk, Purpe, Revda (Murmansk region), Ryrkaipiy, Rytkuchi, Sabetta, Samburg, Saskylakh, Safonovo, Svetlogorsk, Severny, Severomorsk-3, Seyakha, Surinda, Syndassko , Telviska, Tolka, Tukhard, Uemsky, Ust-Belaya, Ust-Kara, Ust-Kuiga, Uelen, Khalyasavey, Khanymey, Kharampur, Kharp, Khatyrka, Kheta, Khonuu, Khorei-Ver, Chupa, Yagelny, Yamburg.

It is also expected that additionala comprehensive list of support settlements on a declarative basis in those subcategories where this is provided.

An approximate package of measures to support support settlements by selected categoriesand subcategories.

Measures of state support for supportingIt is advisable to divide the settlements of the Russian Arctic into two packages: a general (single) package of support measures and packages of support measures for individual categories (subcategories, types) of support settlements of the Russian Arctic. The latter, in turn, are divided into packages of regular measures focused on state support for categories, subcategories and types of support settlements in the Russian Arctic, identified according to universal criteria, and specialized, focused on subcategories and types of support settlements in the Russian Arctic, allocated according to the declarative principle. The first, general package of support measures is aimed at preserving the ONP and ZATO as the most important populated centers in the Arctic. The need to implement this package of measures is determined by the negative impact of the characteristics of the Arctic on socio-economic development as a whole: specific natural conditions require additional costs for heating and lighting, as well as for organizing seasonal storage of fuel, food and other goods in case of limited delivery times; a sparse network of settlements and low population density prevent economies of scale in the production of goods and services (practically depriving Arctic settlements of competitive advantages over more southern settlements in most areas of economic activity); the poor development of transport infrastructure requires additional transportation costs. Since the preservation and development of support settlements in the Arctic is critical for the socio-economic development of the Arctic as a whole (including for ensuring safe navigation along the Northern Sea Route and the Arctic transit transport corridor, as well as for the development of mineral resource centers), the preservation of fully functioning support settlements in the Arctic requires state support. The overall package of measures includes measures to improve the comfort of the urban environment and eliminate the consequences of population decline in recent decades (measures for controlled compression of actively used urban space, demolition of empty buildings, etc.), as well as to ensure socio-economic development with qualified personnel.

In the latter case, it is advisable to implement a program/subprogram for providing personnel to the enterpriseties and organizations of support settlements on terms of co-financing with municipal and regional authorities, as well as on PPP terms (depending on the form of ownership of enterprises and organizations - potential recipients of new personnel) or with full federal funding (federal enterprises and organizations - Federal State Unitary Enterprise, etc.). Taking into account the peculiarities of attracting personnel identified during the anthropological study, such a program should include, for example: facilitating internships for university students located outside the territory of the Russian Arctic - at enterprises of the Russian Arctic; in the absence of places in state preschool educational institutions - compensation for the costs of care and supervision services for preschool children, etc. Work with experts showed that in order to attract personnel to the educational institutions of the Russian Arctic, it is advisable to use a new mechanism for the Russian Federation, namely the creation of institutions for attracting remigrants (persons who have both experience living in the Arctic and experience working/studying outside it) - by analogy with Chinese practice, as well as the practice of some private companies.

The second group of measures is represented by specialized packages of measures differentiated by individual categories and subcategories (in some cases, by individual types) of support settlements and closed administrative territorial entities of the Russian Arctic.

Conclusion

The conducted research convincingly showsthat the patterns of urban development, as well as their functions, are unique in the Arctic, mainly due to poor connectivity between populated areas due to harsh climatic conditions.

Arctic cities and settlements demonstrate a number of paradoxes or special cases of the development of urban interactions that must be taken into account when forming a specialized system of supporting settlements in the Arctic.

1. In the Arctic, a special type of network interactions between cities and settlements is being formed ("extended network region"), in the absence of high transport connectivity, it is held together according to a problem principle: cities interact within this system in order to solve common, region-specific problems.

Analysis of the functions of Arctic cities allowed you reveal There are not many activities based on intra-Arctic networking. This is the training of specialized personnel (pilots, doctors, etc.) with specific competencies; this is ensuring security, where the network principle is most clearly manifested (in the entire Russian Arctic, for example, there are only two marine rescue and coordination centers of the Russian Ministry of Emergency Situations - in Murmansk and the village of Dikson). Within the network region, the "division of labor" (mutual complementarity) between Murmansk and Arkhangelsk is clearly visible. This is a phenomenon that can be confusing when the stereotypical approach about the "correct" model of the region's structure as a centralized one is extended to the Arctic, however, in the practice of urban development, such complementarity of the functions of urban centers (provided they closely interact with each other - commodity, information) is quite a normal phenomenon, Moreover, historically, such forms of urban systems are associated precisely with the most dynamically developing areas with high innovative potential. What is noteworthy is the "under construction" of this network in the eastern part of the Russian Arctic, and here it is logical to complete the construction of our own subcenters of the general Arctic urban network. Norilsk has the greatest potential to become the third key center of the Arctic network region, and ideally it could be an urban agglomeration of key population centers in the north of the Krasnoyarsk Territory, each of which would also perform its own function in it. This:

Dixon (main specialization in the field of securityresearch on the safety of navigation on the Northern Sea Route, a historically powerful meteorological research center, as well as an obvious center of concentration of cultural heritage, including the as yet undocumented);

Dudinka (port and sociocultural functions);

Turukhansk (nave activity support centersminingindustry and sociocultural center);

Igarka (logistics and sociocultural center, location of a unique permafrost museum and potentially an agricultural production centerfor the population of the agglomeration).

Norilsk in this system can play the role of a hub educational, medical, scientific and cultural center, a logistics platform based on airportsthat and the existing food base, as well as a management and organizational center.

Of course, a condition for the successful development of the Taimyr region agglomeration as the main core of development of the eastern Arctic of Russia is to ensure internal connectivity between all these centers: only under this condition, the interaction of enterprises of the listed settlements could give a synergistic effect for the development of both the north of the Krasnoyarsk Territory and the eastern Arctic as a whole. It is obvious that the specialization of this "third capital" of the Russian Arctic should be most effectively associated with solving problems that are most specific to the eastern part of the Arctic. These are problems of permafrost and climate change, pioneering geological development of the territory, but first of all, ensuring safe navigation and forecasting ice conditions (which was historically provided from Dikson, where the headquarters of the NSR maritime operations was located). Problems with the delivery of goods in difficult ice conditions, which appeared on the NSR in the fall of 2021 (they were called the "Pevek crisis" in the press), make us think about creating an integrated system for ensuring navigation along the NSR. Taking into account the existing division of the Northern Sea Route into the western and eastern parts, it would be advisable to locate such a center in Taimyr.

2. Instead of the classical hierarchical regional system of cities, specific roles are being formed settlements in the settlement network, namely:

base cities, being intermediaries between large cities of the main settlement zone, providing the Arctic with a whole range of services, which in urban studies are usually characterized as "large urban" (research and development, personnel training, etc.),

island cities that provide the population and economic agents in hard-to-reach areas with the necessary set of vital and socially significant services (medical care, government services, communications, etc.). Although many activities are not competitive from a cost perspective, they have a competitive advantage based on uniqueness. As a rule, it is these cities that are the main bases for providing urban services to mineral resource centers.

3. In the Russian Arctic there are many so-called supplier cities with a narrowed range of types of economic activity (cities near fields that do not have the status of district or regional centers, inter-district social facilities, educational and scientific institutions,

etc.). Many of them, however, formally (and often informally) perform the functions of providing social services for residents of the surrounding territory (residents of smaller settlements, including representatives of indigenous peoples, rotation workers who use such cities for recreation, families of military personnel stationed in military camps outside outside cities, etc.). To increase the viability of such cities, it is advisable to take measures to expand them into multifunctional support centers, especially if they have a convenient transport location in relation to areas with a relatively dense rural population and active activity of resource extraction companies. An example of such a settlement is Vorkuta: with a reduction in coal mining, the functions of socio-cultural, transport and logistics and information and innovation support for the development of the surrounding territory should come to the fore, and Vorkuta already performs these functions in relation not only to the adjacent regions of the Komi Republic, but and in relation to the eastern, most inaccessible part of the Nenets Autonomous Okrug, as well as to some areas of the Yamalo-Nenets Autonomous Okrug.

An assessment of the potential for mining within a 150 km radius of all Arctic regions carried out during the researchical populatedpoints, as well as in licensed areas, the licenses for which belong to large companies stationed in Arctic settlements, makes it possible to determine the priority of measures to "complete" the functions of support settlements in cities and towns with raw material specialization. This measure is also important from the point of view of relieving social tension.

The research carried out represents a possible range of applied measures implementation which appropriate in support settlements of different categories and undercategories(according to the proposed list). All measures are aimed at strengthening the functions of support settlements and closed administrative territorial entities already represented in Arctic cities and towns of the corresponding category (the majority of these), or in rare cases at completing the functions of closed administrative and administrative units in highly specialized settlements that have the potential to develop as supporting In addition, it is advisable to develop a system of economic, informational and sociocultural interaction between support and other settlements of the Arctic for the sake of effectively ensuring national security in the Arctic zone of the Russian Federation.

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